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ALTERNATIVES TO GOVERNMENT FIAT MONEY

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INTRODUCTION

ALTERNATIVES TO GOVERNMENT FIAT MONEY

James A. Dorn

> The suggestion of depriving government of the monopoly of issuing money and of its power of making any money "legal tender" for all existing debts has been made here in the first instance because governments have invariably and inevitably grossly abused that power throughout the whole of history and thereby gravely disturbed the self-steering mechanism of the market.
>
> —F. A. Hayek[1]

Monetary Stability and Monetary Order

Money of stable value depends on price-level stability, which, in turn, depends on the existing monetary order or monetary regime. What kind of monetary order or regime is most likely to provide stable money? F. A. Hayek (1976, 1978) has suggested that a monetary regime characterized by free banking and competing currencies offers the best chance for achieving stable money.

In contrast, governmentally managed monetary systems having monopoly central banks with wide discretion are likely to experience monetary instability and upset the spontaneous market order. Indeed, the history of discretionary central banking has been characterized by persistent monetary disequilibrium, and during periods of depression and inflation the role of the state typically grew stronger.

It is important, therefore, to consider institutional changes that can improve upon the current governmentally managed fiat money regime. With this task in mind, the articles herein examine the performance of the current monetary regime, question the role of govern-

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[1]From *Denationalisation of Money* (1978, pp. 116–17).

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ment in the monetary order, and consider alternatives to government fiat money.[2]

Failure of Government Fiat Money

History has taught that lodging monopoly power over the nation's stock of currency in a purely discretionary central bank, unconstrained by a monetary constitution, is highly dangerous. The money-supply process is likely to become politicized, with monetary policy becoming subservient to fiscal policy and with monetary authorities exhibiting a bias toward inflation. Peter Bernholz (1988, p. 11), for example, tells us that "a study of about 30 currencies shows that there has not been a single case of a currency freely manipulated by its government or central bank since 1700 which enjoyed price stability for at least 30 years running."[3]

The Federal Reserve fits this mold. Although the Fed has achieved intermittent price stability since its inception in 1913, its long-run performance has been unsatisfactory, especially when compared to commodity-based standards such as the classical gold standard.[4] In particular, by allowing the money supply to shrink by one-third between 1929 and 1933, the Fed caused the worst depression in U.S. history (see Friedman and Schwartz 1963); and by allowing the money supply to increase by more than tenfold in the last 30 years, the Fed provided the means for persistent inflation and allowed the price level to more than quadruple.

With the average annual inflation rate seemingly stuck in the 4.0 to 4.5 percent range, it is surprising that the Fed's reputation has remained largely untarnished. As Milton Friedman (1987, p. 362) remarked, "no major institution in the United States has so poor a record of performance over so long a period yet so high a public reputation as the Federal Reserve." Instead of seeing the current government fiat money standard as "an absurd system in which peo-

[2]The papers and comments in this volume were first presented at the Cato Institute's Seventh Annual Monetary Conference, "Alternatives to Government Fiat Money," held February 23–24, 1989, in Washington, D.C. The conference was supported by a grant from **The George Edward Durell Foundation.**

[3]Bernholz is referring to the study by Parkin and Bade (1978).

[4]Prior to the Fed, long-run price stability was the rule rather than the exception, although short-run instability was common. The WPI stood at the same level in 1900 as in 1750. However, since 1946 the CPI has increased more than sixfold, with no reversal in sight. See Bordo (1981) for a discussion of the performance of the classical gold standard in achieving long-run price stability. William Poole (1989, pp. 198–99) has noted that if price stability is the real measure of success for a monetary system, then the classical gold standard must be judged superior to a managed fiat money system.

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ple cannot count on money's future purchasing power" (Yeager 1988, p. 265), the general public (and many economists as well) continue to regard the existing monetary system as sacrosanct.

It is irresponsible, however, simply to accept the status quo and say the Fed is doing a good job—or that the Federal Reserve and banking regulation are essential for sound money and a healthy economy. In fact, a strong case can be made that the current fiat money regime is inherently unstable. Taking this position, Richard Timberlake (1986, p. 638) has argued, "The history of monetary institutions reveals that every special intervention by government to regulate the monetary system—that is, to compromise market functions—has resulted in institutional changes that have both restricted freedom of enterprise in the production of money and reduced efficiency." Likewise, Friedman and Schwartz (1987, p. 311), in their examination of the role of government in the monetary system, come to the conclusion "that leaving monetary and banking arrangements to the market would have produced a more satisfactory outcome than was actually achieved through governmental involvement."

A Change in Tactics or a Change in Strategy?

Even though the tactics of Federal Reserve policy have changed periodically, the basic institution, our overall monetary strategy, remains the same. The most glaring example is that since 1975 the Fed has reported its monetary targets to Congress, but basic monetary law has remained unchanged. There are still multiple objectives that the Fed is supposed to follow in implementing monetary policy; Fed policy continues to drift without any legally enforceable precommitment to long-run price stability; and the quantity of money is still determined by a dozen central bankers on the Federal Open Market Committee (FOMC) whose personal wealth and tenure are largely independent of their performance.[5] As such, Clark Warburton's ([1946] 1966, p. 316) characterization of U.S. monetary law as "ambiguous and chaotic" continues to ring true.

Public choice theory tells us that unless the rules of the game are changed so individuals face different incentives, one should not expect any significant change in the performance of existing institutions. The Fed is no exception. Imposing monetary targets on the

[5]On this condition, Friedman (1987, p. 379) remarks: "I have found that few things are harder even for knowledgeable nonexperts to accept than the proposition that 12 (or 19) people sitting around a table in Washington, D.C., subject to neither election nor dismissal nor close administrative or political control, have the power to determine the quantity of money."

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Fed but not requiring compliance, allowing the targets to be set for six-month periods rather than specifying multi-year targets to avoid "base drift," and not limiting the Fed's mandate to a single objective of long-run price stability have resulted in confusion and uncertainty in the formulation of monetary policy. Although fresh faces will appear on the FOMC, the lack of accountability and the constancy of the underlying institutional framework for conducting monetary policy imply that the *strategy* of monetary policy will remain unchanged.

Better tactics can help improve the effectiveness of monetary policy, but limiting one's discussion to tactics without considering changes in the overall framework for conducting monetary policy is likely to prove shortsighted. As Friedman (1987, p. 382) argues:

> The problem of monetary policy instability is not chiefly a problem of right tactics by Fed decision makers, but inherent in the system itself. The chief problem is one of strategy or selecting the appropriate monetary framework for stable money, not the person who happens to be chairman at any given time. Until the proper monetary framework is adopted, therefore, we should not expect good intentions of Fed officials to secure sound money and stable prices.

With no clear mandate for price stability and with conflicting short-run policy objectives, the Fed will of necessity be subject to political pressure, even though in theory it is independent. Fed officials, however, are not subject to the democratic process: there are no direct elections to force them out of office. Combined with the lack of any market discipline, Fed officials continue to exercise broad discretionary power. Moreover, by conducting its policy meetings in secret and reporting its actions only with a lag, the Fed enhances its discretionary power and its ability to make tradeoffs in the short run.

The implicit game in monetary policymaking is for the Fed to make those tradeoffs that appear politically feasible at the moment, but not to stray too far from long-run price stability. The problem is that fine-tuning is impossible; trying to lower short-run interest rates by monetary expansion, for example, is like trying to put out a fire with kerosene.[6] Fed actions designed to stimulate economic activity are

[6]Clark Warburton ([1947] 1966, p. 233) referred to central bank preoccupation with interest rate regulation and the sacrifice of monetary control as "upside-down monetary policy." According to Warburton:

> Interest-rate regulation came into vogue as the chief instrument, and later as the objective, of monetary policy. The latter was a fatal error—for it turned the quantity-of-money interest-rate relationship upside down. Central banks tried to use variations in the interest rate both as a technique and as a guide for the provision of a suitable quantity of money in the economy, whereas they should have used provision of a suitable quantity of money as a technique for achieving price-level stability and freedom of the rate of interest.

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likely to destabilize monetary growth because excessive money growth now will have to be reversed at a later stage if inflation is to be cured, but doing so will engender a recession as expectations change and the economy adjusts to a new quantity of money.

The longstanding rules versus discretion debate over the conduct of monetary policy is really a debate over strategy versus tactics, that is, over a change in the institutional framework for monetary policy versus a change in the individuals making policy decisions and the operational procedures they choose to follow. It has been the failure of discretionary policy that has led Friedman and others to call for a rules-based approach to monetary reform. Friedman (1987, p. 379), in particular, has emphasized that "the power to determine the quantity of money . . . is too important, too pervasive, to be exercised by a few people, however public-spirited, if there is any feasible alternative."

The purpose of this volume is to examine the strategy or institutional framework for monetary policy rather than to focus solely on the tactics of monetary policy. In addition, the discussion goes beyond the common rules versus discretion debate by considering alternatives that include the denationalization of money.

Strategies for Monetary Reform

In order to depoliticize the money-supply process, F. A. Hayek ([1979] 1987) has called for a "free-market monetary system." Under such a system, good money would drive out bad money as private producers found it in their self-interest to supply their customers with money of stable value. According to Hayek (p. 383), "if we ever again are going to have sound money, it will not come from government; it will be issued by private enterprise." He goes on to explain why:

> Private enterprise can be expected to provide the public with money it can trust and use because it is profitable to do so, and competition will impose a discipline on private issuers to which the government has never been and cannot be subject. Unlike government, a private issuer must supply the public with a money as good as that of his rivals or go out of business.

Hayek calls for radical reform of monetary institutions because he is convinced that little meaningful change will occur under current institutions. "Our only hope for a stable money," writes Hayek (1976, p. 16), is "to find a way to protect money from politics." The erosion of the rule of law in modern democratic governments means that tinkering with the tactics of monetary policy to achieve greater price-

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level predictability is futile; special interest groups that benefit from increased government spending will continue to drive Congress and exert pressure for "easy money." Even if a monetary rule were introduced, it is unlikely to be enforced if it clashed with short-run policy objectives. Thus, from his perspective, Hayek ([1979] 1987, p. 388) concludes: "I do not see the slightest prospect that democratic government—under which every little group can force the government to serve its particular needs—can ever again give us stable money, even if its money-creation powers were strictly limited by law."

The Fed's ability to dodge accountability has also led Friedman (1987) to move away from calling for a mere change in operating procedures to calling for an effective end of central banking as we know it—by freezing the monetary base and allowing a parallel system of private competing currencies. As he notes, "I approve of Professor Hayek's proposal to remove restrictions on the issuance of private moneys to compete with government moneys" (p. 374).[7] Thus, while better operating procedures—better tactics—would be economically feasible and improve the conduct of monetary policy, Friedman (pp. 366–67) concludes: "The obstacle is not feasibility but bureaucratic inertia and the preservation of bureaucratic power and status."

From the perspective of strategy, the problem of achieving stable money becomes a problem of implementing and maintaining a monetary constitution. What is required, therefore, is to introduce and enforce a new set of rules within which individuals will have an incentive to protect the value of money. Since self-enforcement in the public sector is unlikely to achieve sound money, the free-market alternative to government fiat money warrants careful attention. Even though Hayek's scheme for competing private currencies is unlikely to be implemented any time soon, it is worthwhile to go beyond the status quo and consider proposals that would take monetary control out of the hands of government officials and return money to the competitive market process—"the only *process* by which we can find out what would be good money" (Hayek [1979] 1987, p. 387).

[7]Friedman (1987, p. 374), however, does not share Hayek's opinion with regard to the ability of private currencies to compete with conventionally accepted government fiat money. In Friedman's judgment, "the advantage of a single national currency unit buttressed by long tradition will, I suspect, serve to prevent any other type of private currency unit from seriously challenging the dominant government currency, and this despite the high degree of monetary variability many countries have experienced over recent decades."

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The Federal Reserve has been in existence for only a little over 75 years. Money of real value emerged long before the Fed, as individuals searched for a standard unit of account, a store of value, and a medium of exchange. At base, money is a market phenomenon, not a creation of government. What government has done is to replace real-valued money with fiat money and to divert attention away from the historical roots of money.[8] The challenge is to study the history of monetary institutions and to develop monetary theory so as to improve current monetary institutions. Although free-market money may not be politically feasible now, it is useful to consider several different strategies for institutional change in light of the Fed's failure to deliver money of stable value. Moreover, the future path of monetary reform will be influenced not only by the failure of current institutions but also by the public's perception of how well alternative institutional arrangements might perform in achieving stable money and prices.

A Monetary Constitution

The papers by *James M. Buchanan, Richard H. Timberlake,* and *David I. Fand* all approach monetary reform from a constitutional perspective. Buchanan has long advocated a constitutional strategy in dealing with monetary reform.[9] In his opinion, the present state of monetary affairs offers no guarantee for price-level predictability, and the case for continuing the current regime is deeply flawed. Attention, therefore, should be shifted to more fundamental reform—to changing the rules of the game in order to maintain the long-run value of money and to set the basis for prosperity. According to Buchanan:

> There exists no monetary constitution, as such, in the United States. What does exist is an institutionally established authority charged with an ill-defined responsibility to "do good," as determined by its own evaluation. . . . Viewed in this perspective, it becomes difficult, if not impossible, to mount intellectually respectable defenses for continuation of the monetary institutions that are in being.

Timberlake examines the monetary clauses of the U.S. Constitution (in particular, Article I, Section 10) and finds no basis for the present fiat money regime. The government's monopoly of the right to create paper money, in other words, is an illicit license—one

[8]The free-banking systems in Scotland and the United States during the first half of the 19th century attest to the possibility of nongovernmental currencies. See, for example, White (1984) on the Scottish experience with free banking and Rockoff (1974) on the U.S. experience.

[9]See, for example, Buchanan (1962).

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never envisioned by the Founding Fathers. By failing to uphold the convertibility principle inherent in the Framers' Constitution, the judiciary, in Timberlake's view, has allowed Congress to perpetuate the myth that government has a legitimate right to its monopoly over high-powered money. Thus, he writes, "The alleged prerogative of the state to control the monetary system through a legal tender power is a juridical myth."[10]

The Founding Fathers sought to ensure that politicians would not be tempted to use the central bank as an instrument of fiscal policy. That was the purpose of tying the circulating medium to a commodity anchor in order to limit its quantity rather than relying on a central bank to limit the quantity of an inconvertible paper currency. In this vein, James Madison (1831) wrote:

> The only adequate guarantee for the uniform and stable value of a paper currency is its convertibility into specie. The least fluctuating and the only universal currency. I am sensible that a value equal to that of specie may be given to paper or any other medium, by making a limited amount necessary for necessary purposes; but what is to ensure the inflexible adherence of the Legislative Ensurers to their own principles & purposes?

Clearly, Madison well understood the public choice aspects of different monetary systems. In particular, he saw a need for convertibility in order to depoliticize the money-supply process and to ensure that a market-driven adjustment mechanism would bring about long-run price stability. It is precisely Madison's constitutional/public choice perspective that has been lost sight of and that Timberlake would like to restore.

Fand adopts Axel Leijonhufvud's terminology and describes the current fiat money regime as a "random-walk monetary standard." In Fand's view, the present monetary system is random in the sense that policy is uncertain, haphazard, and leads to erratic money and prices. What concerns Fand is that there is no precommitment to stable money in the Fed's charter. As a result, there is nothing to anchor the long-run price level. In such an environment, rational economic calculation will be more difficult than in a regime of stable money and prices. To remedy this shortcoming of the discretionary fiat money regime, Fand follows the route of Buchanan and Timberlake by arguing for a monetary constitution.

Private Currency and Free Banking

Under the gold standard, the long-run value of money was to a large extent protected from government abuse. But the historical

[10]Cf. Richmond Federal Reserve Bank President Robert P. Black (1987, pp. 233–34) who argues that there is no constitutional mandate for government fiat money.

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gold standard was far from ideal. As Hayek (1978, p. 106) observed, "Though gold is an anchor—and any anchor is better than a money left to the discretion of government—it is a very wobbly anchor." A system of competing private currencies would improve upon the gold standard, in Hayek's judgment, because competition itself would act as a disciplinary force in maintaining the value of inconvertible private currencies. If such a system were put into practice, argues Hayek (p. 107), convertibility would be unnecessary. Nevertheless, Hayek would let the market decide on the best monetary institutions. It is conceivable, therefore, that convertibility could remain part of a private currency system if the public so desired.

With the introduction of a parallel private-currency system, monetary freedom would increase. The Fed would no longer retain its monopoly position and, as Hayek (1976, p. 22) notes, denationalization would result in "the abolition of monetary policy." Hayek wants to rid the state of its control over the quantity of money because he believes "the best the state can do with respect to money is to provide a framework of legal rules within which the people can develop the monetary institutions that suit them best."

In sum, Hayek's proposal for denationalizing money is a reaction to the loss of freedom and the increased uncertainty occasioned by replacing a market-driven monetary system operating under a rule of law—the classical gold standard—with a centrally directed monetary system operating under almost complete discretion. In his view, the failure of the managed fiat money regime to deliver stable money is detrimental to the long-run survival of a free society. "If we want free enterprise and a market economy to survive," writes Hayek (1978, p. 126), "we have no choice but to replace the governmental currency monopoly and national currency systems by free competition between private banks of issue."

The papers in this volume by *Gerald P. O'Driscoll, Jr.; Richard W. Rahn;* and *Lawrence H. White* take up Hayek's suggestion for denationalizing money. O'Driscoll argues that Hayek's pioneering work on private alternatives to government fiat money is but another example of his ability to formulate novel questions that open entirely new areas for research. Indeed, in a relatively short period of time, Hayek's probing questions have redirected attention from the tactics of monetary policy to the framework for private currencies and free banking.

That Hayek's ideas are gaining ground was recently brought out in an article in *Forbes,* in which Peter Brimelow (1988) discussed the significance of Hayek's denationalization proposal. The article states: "Privatized money, alias 'competing currencies' or 'free bank-

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ing,' is an idea that you will be hearing much more about in the years ahead" (p. 243).

Rahn's paper reflects the *Forbes* theme and contends that private money is "an idea whose time has come." According to Rahn, both the information revolution and the introduction of global financial markets should permit greater experimentation with alternatives to government fiat money. However, he expects that a parallel currency system—in which a privately determined unit of account is defined in terms of a basket of internationally traded commodities and securities—is more likely to appear in Eastern Europe than in developed countries in the West. The failure of state planning and the inconvertibility of Eastern bloc currencies, argues Rahn, necessitate an alternative to state-controlled currencies. By providing individuals and businesses with a money of real value that can be readily exchanged for leading foreign currencies, Rahn's proposal is intended to give Eastern European economies an escape hatch from state planners, foster trade, and help ease the transition to a private market system.

While Rahn discusses one conceivable form that free-market money might take, White adopts a more general approach and traces the kinds of monetary institutions that might emerge from open competition. He suggests that historical episodes of free banking can give us clues about the types of monetary institutions consumers might choose in the absence of government intervention. But he concludes that historical precedents are an insufficient guide to the future shape of a laissez-faire monetary system, which would unfold in an evolutionary manner as new information became available and individuals exercised their freedom of choice. Trying to pin down the exact form of future monetary institutions flowing from a competitive market process is, therefore, futile. White's own hunch, based on his study of monetary history, is that individuals are likely to reveal a preference for convertibility and opt for a commodity-based private currency system (probably one based on gold). He is quick to remind us, however, "that the ingenuity of potential monetary entrepreneurs in devising contracts makes it impossible for any economist to list all the forms competitive money might take, let alone to judge authoritatively which forms would survive the market selection process in the future."

The Yeager-Greenfield Proposal

In their paper, *Leland B. Yeager* and *Robert L. Greefield* argue against the current monetary regime on the grounds that (1) there is no well-defined unit of account and (2) monetary disequilibrium is prevalent and can be eliminated only by a long, drawn-out, and often

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painful adjustment process. To correct these defects, the authors propose a laissez-faire payments system in which there is an independently defined unit of account and no outside money. Under their system, the unit of account would be defined in terms of a comprehensive commodity basket, which would keep the real value of the unit stable. A private payments system would then operate to keep the nominal money supply in line with nominal money demand at the fixed price level. As such, the authors believe their proposal, which Allan H. Meltzer refers to as a "money of real value" or "MORV," would eliminate monetary disequilibrium.

The Transition Problem

In considering strategies for monetary reform, one must face the problem of transition. Moving from one regime to another involves costs as well as benefits. The lower the expected costs of any regime change relative to the expected benefits, the greater the probability that a change will occur. The public's perception of the costs and benefits, however, will be influenced by their understanding of the current regime, the state of the current regime, and the likelihood that a new regime will *significantly* improve upon the current regime.

The papers by *George A. Selgin* and *Jerry L. Jordan* touch on the transition problem by examining the shortcomings of the existing U.S. monetary system, which is hampered by an array of legal restrictions, and by suggesting feasible routes for moving toward a freer monetary regime. Like Hayek, both Selgin and Jordan think that greater monetary freedom would significantly improve upon the current government fiat money regime.

Removing Legal Restrictions

Selgin sees the current discretionary regime of central banking and government fiat money as inherently unstable. In his view, legal restrictions have weakened the financial system and created a false demand for a lender of last resort in the form of a monopoly central bank. Moving away from this system of government intervention toward a system of free banking and competing currencies, argues Selgin, would increase rather than reduce the stability of money and banking.

To facilitate the move toward a free-market monetary regime, Selgin recommends removing legal restrictions such as anti-branching laws, deposit-rate ceilings, and other regulations impeding banking competition. He would also replace the federal deposit insurance system with a private alternative in order to eliminate the problem

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of moral hazard that plagues the present system. If such reforms were carried out, Selgin believes there would be no need for an official lender of last resort.

The transition from the existing system to a system of free banking and private currencies will be difficult. But in Selgin's view, the job must be done. "Dismantling bad bank regulations," writes Selgin, "is like cutting wires in a time bomb: The job is risky and has to be done in carefully ordered steps, but it beats letting the thing go on ticking. Once the fuse—the legal restrictions—is dismantled, the payload—central banking and fiat money—can safely be disposed of."

Steps toward Monetary Denationalization

Jordan is dissatisfied with the performance of the discretionary fiat money regime, which he sees as another form of collectivist planning. In his opinion, "The nearly universal rejection of collectivist approaches to economic activity should now start to include central banking and money creation. Private, competitive approaches offer greater stability and protection from political abuse, as experience demonstrates." He, therefore, proposes a number of reform steps to move us closer to a private currency system and free banking.

To guide us toward a laissez-faire monetary system, Jordan proposes that in the near term the United States and its major trading partners form a coalition to achieve price-level stability. Each member of the coalition would agree to limit the growth of high-powered money in order to maintain stable money and prices. Such an organization would serve to limit the discretionary power of central banks and set the basis for further reform. The problem, of course, is first how to get everyone to agree and then how to enforce the agreement.

Other near-term measures include floating the Fed's discount rate and treating it as a penalty rate (so that it exceeds the federal funds rate), reducing legal reserve requirements, paying interest on reserves, and prohibiting central bank intervention in the foreign exchange market.

Longer-term measures include requiring the courts to enforce specific performance with regard to contracts stated in units other than the U.S. dollar, exempting bank-issued electronic currencies from minimum reserves, eliminating open-market operations (except in the case of a national emergency), and privatizing federal reserve banks.

Following these near-term and long-term steps, argues Jordan, would permit the deregulation of banking, facilitate the development of a parallel currency system (especially as new technology was

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introduced), and create the conditions for achieving stable money and prices.

Prospects for a New Monetary Regime

What would it take to move from the current discretionary fiat money regime to a regime in which the Fed is bound by a monetary rule, or to a regime in which the central bank itself is absent—for example, to a real gold standard, a commodity-reserve standard, or free banking and competing private currencies? The further one travels along this path, the more the state leaves the realm of money and the more the market returns. But the more radical the reform, the more disgruntled the public must first become with the current regime.

The Fed's reputation remains relatively unblemished, but if inflation climbed back into the double-digit range—in the absence of any supply-side shock—and nominal interest rates moved into the high teens, the political ramifications might be such as to fuel the debate over fundamental monetary reform. It is misleading, therefore, to think that only a prolonged monetary crisis such as a hyperinflation would generate a widespread movement for monetary reform. An acceleration of inflation coupled with memories of recent double-digit inflation and historically high nominal interest rates might be sufficient to change the status quo. It is also misleading to think that monetary reforms occur only as quantum jumps in the monetary regime when, in fact, most institutional changes occur gradually on a trial and error basis.

One positive development, for example, is the recent call by Rep. Stephen L. Neal (D., N.C.) to limit the Fed's mandate to a single objective, namely, achieving long-run price stability. His proposal, the "Zero-Inflation Resolution" (House Joint Resolution 409), aims at achieving zero expected inflation over a five-year period and then maintaining that condition so that business decisions would no longer be hampered by price-level uncertainty. Neal's proposal has the support of Federal Reserve Chairman Alan Greenspan and others within the Federal Reserve system. According to Greenspan (1989, p. 5):

> The current resolution is laudable, in part because it directs monetary policy toward a single goal, price stability, that monetary policy is uniquely suited to pursue. While such influences as oil price shocks, droughts, depreciation of the dollar, or excise tax hikes may boost broad price indexes at one time or another, sustained inflation requires at least the acquiescence of the central bank.

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> Moreover, the objective set in this legislative proposal would promote the welfare of the American people, because price stability is a prerequisite for, over time, maximizing economic growth and standards of living. As the resolution spells out, the elimination of inflation would allow the economy to operate more efficiently and productively by reducing the need to predict and to protect against inflation. The elimination of inflation would allow interest rates to decline and would reduce the uncertainty about price trends that can discourage saving and investment.

By narrowing the Fed's mandate to the objective of long-run price stability, H. J. Res. 409 would increase the likelihood of ending the persistent inflation that has burdened the U.S. economy since World War II. Still, the absence of any enforcement mechanism to discipline Fed officials if they fail to limit money growth to a noninflationary path gives cause for concern about the probable success of this approach to monetary reform.

The papers in this volume force us to think about strategic changes in monetary institutions rather than just focus on changing tactics within a given institutional framework. In the quest for stable money, there are many paths. Discretion within a government fiat money regime has been tried and has failed. It is now time to explore new paths. The problem is that as long as the government holds a monopoly over currency and restricts innovation in banking practices, there will not be much room for private initiative and choice. As Hayek (1989, pp. 103–4) writes,

> Under government patronage the monetary system has grown to great complexity, but so little private experimentation and selection among alternative means has ever been permitted that we still do not quite know what good money would be—or how good it could be. Nor is such interference and monopoly a recent creation: it occurred almost as soon as coinage was adopted as a generally accepted medium of exchange. Though an indispensable requirement for the functioning of an extensive order of cooperation of free people, money has almost from its first appearance been so shamelessly abused by governments that it has become the prime source of disturbance of all self-ordering processes in the extended order of human cooperation. The history of government management of money has, except for a few short happy periods, been one of incessant fraud and deception. In this respect, governments have proved far more immoral than any private agency supplying distinct kinds of money in competition possibly could have been.

Even if radical changes in U.S. monetary institutions are unlikely at present, marginal changes that chip away at the Fed's discretion and monopoly power are important. Rep. Neal's Zero-Inflation Resolution is a step in this direction. The near-term reform measures

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advocated by Jordan would also be beneficial. Freezing the monetary base or adopting a nondiscretionary feedback rule to limit base-money growth to a noninflationary path and to stabilize nominal GNP would likely improve upon the discretionary fiat money regime.[11]

The ultimate success of any reform measure in constraining the Fed's discretionary power and halting inflation, however, would depend on the implementation and maintenance of a monetary constitution. And this is where the problem lies, because as long as monetary power is lodged in a monopoly central bank subject to congressional pressure, there will always be an incentive for Fed officials to circumvent a given rule—unless that rule is anchored by an effective constitutional provision for disciplining monetary authorities as a *general principle.*

Presently the Fed is subject only to self-enforcement of its declared monetary targets and there is no penalty for noncompliance. Self-enforcement, however, is bound to fail within the public sector since there are no private property rights and no profit-seeking entrepreneurs who can gain by eliminating inflation or who lose by continuing inflation. Going beyond the rules versus discretion debate to a consideration of what type of monetary constitution is best able to provide a stable and credible monetary feedback is, therefore, of critical importance. What Hayek has done is to remind us that self-enforcement is best left to a competitive market process, which in the case of money and banking would weed out bad money and inefficient banking practices.

Customary habits of thought are hard to break. This fact is certainly true when it comes to conventional wisdom regarding the role of government in the monetary regime. Breaking away from the status quo and examining alternative monetary regimes can shed new light on old problems. Moreover, shifting attention from the tactics of monetary policy to the strategy for reform forces us to rethink the role of government in the monetary system.

Hayek's innovative work on the denationalization of money has opened the door for a new research agenda. His ability to reformulate traditional questions in monetary economics and to raise entirely new questions has been beneficial. In light of Hayek's work, one can ask such questions as:

- Can monetary disequilibrium be eliminated by a laissez-faire payments system?

[11]See the comments by Bennett T. McCallum and Allan H. Meltzer (in this volume) for examples of nondiscretionary feedback rules intended to produce long-run price stability by controlling the growth of the monetary base.

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- Would competition be sufficient to promote stable money in a *private* fiat money world or is convertibility also required?
- Would a nondiscretionary monetary rule be superior to a free-market monetary system, and which is more likely to be implemented and maintained?
- Is fractional-reserve banking inherently unstable or does banking stability depend on the overarching monetary framework and the legal restrictions that accompany it?
- Would the removal of legal restrictions and the institution of free banking leave any function for a lender of last resort?[12]
- What mechanism would prevent free banks from overissuing *as a group*?
- Does the existence of transition costs mean that any monetary reform will be stepwise (i.e., evolutionary) rather than a major one-time change in the monetary system?
- What immediate steps can be taken to depoliticize money and facilitate free banking?

The answers to these questions are by no means settled. But by asking such questions, the authors in this volume have paved the way for future research on the denationalization of money. In addition, the new research on free banking and competing currencies has tended to shift the burden of proof from those who favor market-oriented monetary systems to those who favor a continuation of the status quo. The failure of the discretionary fiat money regime cannot be ignored, nor can the fact "that there is no justification in history for the existing position of a government monopoly of issuing money" (Hayek [1979] 1987, p. 389).

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Reductionist Reflections on the Monetary Constitution

James M. Buchanan

The Absence of a Monetary Constitution

There exists no monetary constitution, as such, in the United States. What does exists is an institutionally established authority charged with an ill-defined responsibility to "do good," as determined by its own evaluation. We would have no difficulty in classifying an analogously directed military junta in a Latin American setting as nonconstitutional, by which we would mean, quite properly, that it operates in accordance with no predictable rules of behavior. Viewed in this perspective, it becomes difficult, if not impossible, to mount intellectually respectable defenses for continuation of the monetary institutions that are in being. Yet we observe relatively little revolutionary fervor, even among political economists, to challenge the institutionalized status quo.

A shift in regime that would put in place a genuine monetary constitution, one that would incorporate stable and predictable rules of the game, would generate an outward displacement in the value feasibility space for the economy. By reducing the uncertainty involved in each and every transaction made in nominal monetary values, each potential transactor can share in the newly available increment to value surplus. Failure to introduce a constitutional regime in money, therefore, amounts to a collective refusal to implement a technological improvement that is acknowledged to be mutually beneficial.

Explaining the Persistence of the Status Quo

How do we explain our observed failure to exploit this opportunity to increase our well-being? Small, and possibly influential, groups

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do exist which secure rents because of the nonpredictability that characterizes the monetary arrangements in existence. Those persons who have invested human capital in acquiring differentially advantageous abilities to foresee and react to the behavioral shifts of those who make decisions for the monetary authorities, of course, would suffer transitional loss from any shift toward an effective monetary regime. But the "Fed-watching" industry, in total, is surely not sufficiently strong to explain the apparent invulnerability of the regime of discretionary authority. We can add in the potential influence of the entrenched bureaucracy of the monetary authority itself, including all levels in the hierarchy. And we still remain with what seems to be an intellectual puzzle in political economy. Why do we, as members of the body politic, put up with institutional arrangements that seem to keep us well within the frontier of potential value? Why do the professional economists, who are presumably competent to analyze alternative institutional structures, seem so reluctant to condemn the existing regime?

The issues here are neither so simple nor so straightforward as I have made them seem to be. Both the propositions advanced and the questions posed above depend on acceptance of a conception of "the economy" that is not shared with many of either my professional peers in economics or my fellow citizens. To put my position dramatically, many economists do not know what they are talking about, and, if economists do not know, how can they expect citizens to cut through massive intellectualized absurdity?

Two Conceptions of the Economy

There are two categorically different conceptions of what an economy or "the economy" is. The first, and that upon which the earlier statements and questions have been based, is the conception of the economy as a *structure* or *order*, described by a set of rules, and within which separate individual actors pursue individually selected objectives, including individually defined economic value. The second conception is one of an economy as an independently existing *organic* unit, to which purpose can be assigned. Macroeconomics, in its very nature, implicitly embodies the second of these conceptions. Macroaggregation (the attempt to measure national product, income, growth, employment) leads almost directly to targeted values or, at least, directions of change in the aggregated variables. By contrast, in the first conception of an economy as an order, the aggregated values *emerge* from the interlinked choices made by individual parti-

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cipants; but these values are not appropriate targets for purposeful manipulation.

Analogies are helpful to illustrate the contrast and comparison between the opposing conceptions. In the first, nonteleological, vision of the economy as an order or structure, the appropriate analogy might be a municipal playground, with tennis courts, swimming pools, swings, sandboxes, basketball courts, and softball diamonds. This playground operates in accordance with rules that allow the separate individual users to pursue their own objectives as they variously utilize the available facilities. In this case, it is clear that users' interests are furthered by the presence of stable and predictable rules concerning usage of the facilities. Discretionary authority on the part of the playground manager to change opening and closing hours, eligibility requirements for using facilities, and rationing schemes for usage would tend to reduce the value of the playground for all potential users. Moreover, if in some initial setting, the manager did, indeed, have such discretion, the imposition of a set of rules would surely be a value-enhancing shift for the regime.

In the second, or teleological vision, the economy, as a unit, becomes analogous to a ship which, if left alone and rudderless, would toss about on a sometimes stormy sea. The replacement of the discretionary authority of the ship's captain by an automaton may seem foolhardy. The very survival of the ship may seem to depend on the skill of the captain and crew who will maneuver the ship safely through possibly troubled waters. Displacement of the captain's discretionary authority by a navigational automaton will, to be sure, generate greater predictability in the direction of the ship's movement, but at the possible expense of navigational disaster in an unpredictable sea.

Neither of the analogies fully captures the attitude of those who hold either the nonteleological or the teleological conceptions of the economy. Those who think of the economy as an order—a structure of rules within which persons separately pursue private purposes—allow for the possible sharing of common purposes among individuals and groups, purposes that may be achieved through collective organization. Those who think of the economy as an organic unit to which macropurpose may be assigned allow for the possible extensive pursuit of private, individually identified goals within the broad limits defined by macromanagement. There remains, nonetheless, a different conceptualization of the economy at the most basic level of comprehension. The economy-as-order is accompanied by the protective state or polity, the function of which is to maintain the rules of the order itself, rather than to steer or direct the economy,

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as such. The economy-as-organic unit must be accompanied by an activist state or polity, one that is required to macromanage, steer, and direct the economy toward objectively definable goals or purposes.

Dethroning Macroeconomics

Macromanagement through fiscal fine-tuning was the initial heritage of the Keynesian revolution in economic policy, although precursory elements of macropolicy can be located in the central banking theory of the 1920s. The subsequent fall of fiscal policy from favor was due to acknowledged operational flaws rather than to any convergence of economists' attitudes toward the inappropriateness of macromanagement. More or less by default, although aided and abetted by over-enthusiasm on the part of advocates of some variants of monetarism, macromanagement came to be shifted almost exclusively to the monetary authorities. This shift, in itself, remains surprising, especially because it was accompanied by a developing recognition of monumental operational failure in the 1930s.

The discretionary powers of the existing monetary authorities are defended by those who simply cannot conceive that the economy, if constrained appropriately within the "laws and institutions" (so well understood by Adam Smith), can operate to generate maximal value for the persons who participate in the interaction process. There is a difference in mind-set at the most basic level. Many of us see the failure to exploit the opportunity offered by the adoption of a genuine monetary constitution (of almost any description) as equivalent to the explicit refusal to take more rather than less. Therefore, we will not succeed until and unless we effectively excise economic macropurpose from the listing of tasks appropriately assigned to agents of the state. The implications for the status of macroeconomics are clear; so long as macroeconomics remains central to our discipline, we shall not secure reform in our monetary arrangements.

At the same time that we dethrone macroeconomics, with its implied macropurpose for the aggregative economy, from its place in the economists' research program, we must not commit the error of over-extension. In our playground analogy, it seems clear that the discretionary authority of the manager should be restricted by rules. This is not equivalent to saying that the playground would be a more desirable place in the total absence of all rules. A rules-structured, or constitutional, order rather than anarchy is something upon which shared agreement may be reached.

Achieving Price-Level Predictability

Predictability in the value of the monetary unit is *not* a macropurpose of state-directed economic policy. It is, instead, an attribute of

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the agreed-on rules within which individual actors contract one with another in the complex interaction of voluntary exchanges. In this sense, predictability is not basically different from the security of rights to property, although descriptively such predictability is perhaps closer to enforced standards for ordinary weights and measures. As a commonly desired attribute of the rules or structure, predictability in the value of the monetary unit is within the direct sphere of responsibility of the protective state, in a sense precisely comparable to the provision of security of private rights to property and the enforcement of voluntary contracts.

It is essential to understand the difference between the *emergent* macroproperties of a well-ordered economy and the properties of the structure that are prerequisite to the attainment of the commonly desired emergent properties. With a shift to a constitutional regime that embodies predictability in the value of the monetary unit (predictability that may be generated by any one of several institutional alternatives), all individual contractors share in the relative reduction in transactions costs, thereby releasing resources for employment in various privately valued uses.

A Fundamental Misunderstanding of Economic Process

The macroeconomics of money is complex because the institutions in existence reflect a fundamental misunderstanding of economic process. Our didactic role must be focused on removing this misunderstanding. We waste both our intellectual and our emotional energies by engaging in scientific disputes (no matter how challenging these may be) that find their relevance only because of the flawed understanding and its institutional implications.

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The Government's License to Create Money

Richard H. Timberlake

> Hence, the power of saying what shall be money, at what rate money shall be taken, and what it shall be worth, has, in all civilized countries . . . been deemed one of the badges and attributes of sovereignty, and assigned to the central and supreme authority of the state, as that which may indeed be perverted or abused, but which, yet abused or not, must be exercised uniformly, and according to some common rule, in order to be of utility to all.
>
> —Judge J. Hare[1]

> The erroneous belief that it is a duty of the state to regulate the value of money is the parent of all the vicious monetary legislation in the world; born of an old superstition that a mysterious power of sovereignty imparted to coin an added value, it has obstructed the growth of money at every stage of advancement. . . . Bi-metallism, monometallism, fiat money, and the notion that the supplying of money is a function of government are all the logical outcome of the false premise that the state can impart value to money.
>
> —William Brough[2]

The Contemporary Monetary System in Contrast to the Constitution

A summary foreshortened view of the U.S. monetary system, as it has emerged from the constitutional principles that sought to shape it to the institutional forms it has assumed today, can only occasion an exclamation of disbelief. Congress does make other things besides

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[1]Cited in Hunt (1903, p. 101n.).

[2]Brough [1896] 1969, pp. 133–34).

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gold and silver coin "a Tender in Payment of Debts" in outright violation of Article I, Section 10. Furthermore, the other things it makes legal tender are Federal Reserve "bills of credit," which also violate Article I, Section 10. True, the proscription was aimed at state governments, not at the federal government. The state governments, however, were regarded as superior to the federal government, so any power denied the former was also denied the latter by the 10th Amendment. The debates over the "money" clauses left no doubt that "Bills of Credit" were the paper money issued under the authority of the state and continental governments during the pre-constitutional era (Siegan 1987, pp. 22–27). As though to flout these proscriptions of the Founding Fathers, the present-day monetary system in the United States has *no* gold or silver in it, on it, or backing it; and all of the fiat paper currency is full legal tender for both private and government debts and payments.

This state of affairs suggests several questions: How did we ever get from there to here? What were the critical legislative, administrative, and judicial decisions that turned a constitutional monetary system completely around from its intended path? And, finally, what are the means available, no matter how politically remote, for getting from here to there again—forward, that is, to the system intended by the constitutional creators?

Present-day monetary systems are completely managed by central banks that have no effective constraints either from the traditions of common law or from written rules of law. All modern central banks create legal tender paper money or lawful-money bank reserves at the discretion of their managers, who thereby reward themselves and their governmental sponsors with significant amounts of seigniorage revenue (Toma 1982; Timberlake 1986).

Indeed, the scene today is not significantly different from what it was 450 years ago in the England of the Tudors, particularly at the time of Henry VIII (Breckenridge [1903] 1969, pp. 39–42). Subsequent to Henry and his immediate successors, however, a sea-change in currency management took place in England. Over generations, and particularly during the 17th century, the rule of law gradually replaced the discretion and avarice of despotic monarchs. This transition manifested itself in both English and American polity and reached its zenith in the greatest political document of Western civilization, the U.S. Constitution.

Tracing the sequence of events that led, first, to a monetary system operating under the rule of law, and second, back to an unconstrained discretionary system may provide a link to understanding what form a constitutional monetary system might take in the future. The focus

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of this paper, in particular, is on the antecedents and ramifications of the idea that some prerogative of sovereignty endows the state with the absolute power to proclaim the legal tender property of any monetary unit it chooses to create and issue.

Early Monetary Experience with Legal Tender

Long before the appearance of the Tudor monarchies in England, the precious metals had evolved as coined monies. Since the coins at first circulated by weight, the facility with which they were exchanged could be expedited by standardizing their size and stamping them with a seal of weight and fineness (Burns [1927] 1965, pp. 25–40). This benign function induced state authorities to assume monopoly powers over the coinage (Burns [1927] 1965, pp. 445–47).

Arthur R. Burns noted in his treatise, *Money and Monetary Policy in Ancient Times*, that the direct evidence of legal tender on ancient Greek coins cannot be seen. However, he concluded:

> It is beyond doubt that legal tender regulations existed in some form or other from the earliest times. No unit of account could come into general use until it was legally defined, and this [legal specification] would involve a statement of the means by which a debt expressed in the unit could be settled. . . . The Roman state fixed the rate at which coins were to pass, and presumably at this rate they were legal tender and had to be accepted. They were at no period merely punch-marked ingots to be placed in the balance at the option of the payee [Burns (1927) 1965, pp. 378–80].

Burns's study of the evolution of coined money suggests a Jekyll-Hyde sequence. While acting in a Dr. Jekyll capacity, the state saw to the certification of the weight and fineness of coined metal, and stamped the coins to verify their material content. In time, however, the state's coinage monopoly converted it into a Mr. Hyde. Both Greek and Roman heads of state learned to obtain real returns from seigniorage, and Roman rulers routinely debased the coinage for centuries (Timberlake 1988).

The Constant Problem with Bimetallic Standards

The ubiquitous coinage of both gold and silver, in conjunction with the prerogative of coinage that states had assumed for themselves, resulted in bimetallic standards. Since the relative resource costs of producing the two metals changed over time, the relative market values of the two monetary metals occasionally diverged from their proclaimed mint values and resulted in one or the other metal being exported. "Then the legislator altered the tariff [ratio of value],"

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noted W. A. Shaw, and thereby became aware of the fact that the official mint ratio was the culprit of the "seduction." As a "further defence of a particular class" of either gold or silver coins, the legislator imposed "a limitation on the tender of such," so as to prevent bullion operations whereby the coin would be melted down. "This limitation," Shaw stated, "was the first development of [an explicit] law of tender" (Shaw [1896] 1967, p. ix).

The natural practice of two coined moneys and bimetallic standards for them, together with the wear and tear on the coins and the cupidity of monarchs, resulted in constant devaluation in weight and fineness of the coins. Concurrently, the growth of parliamentary powers that limited regal discretion, plus the emergence of the rule of law in political affairs, put constraints on the magnitude of the debasement policies. Shaw stated that, by the end of the 17th century, debasement "began to be impugned on theoretic grounds and in the course of the 18th century fell into disuse. Since that time [until the late 19th century] no Mint or legislative change . . . was made on the expressed value or [precious metal] content of any European coinage" (Shaw [1896] 1967, pp. 160–61). The practice of state manipulation of the coinage to obtain revenue ended. "In the domain of financial practice," Shaw concluded, "the mercantile system . . . ceased from the moment that the Governments of Europe left their Mint rates stationary, and gave the flow of the precious metals and the declaration of the ratio to the free unhampered natural action of international trade" (p. 161).

S. P. Breckenridge, a political scientist writing in 1903, carried out a more particular investigation of legal tender as it developed in British polity. "The power over the coinage was from pre-Norman times," she observed, "a part of the royal prerogative." The coinage power included the "determination of weight, alloy, and denominative value of *new* coin; the alteration of coin *already in use*; and legitimation of *foreign coin*." The king exercised this power by royal proclamations declaring the value at which coins should pass. All lawful money as indentured (specified) at the mints was legal tender unless explicitly expressed otherwise (Breckenridge [1903] 1969, pp. 9–22).

The English experience up to the time of Elizabeth suggests that the excesses of the royal prerogative stemmed, not from the power to define coinage denominations, but from the authority to specify weight and fineness in conjunction with the monopoly of coinage. The king with both powers had an expedient means to tax his subjects by debasing the coinage (Brough [1896] 1969, pp. 15–17). Few monarchs would have had the grace of either God or man not to have

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abused these powers. However, from the time of Elizabeth's death in 1603 up to 1816, when silver was formally made a subsidiary currency, "the weight of the gold coins was altered [only] in order to secure the concurrent circulation of coins of both metals, but no change was made in the character of the silver coins" (Breckenridge [1903] 1969, pp. 43–48).

Both Shaw and Breckenridge disposed of, rather than treated, the momentous difference in polity that was a consequence of the shift in sovereignty from king to Parliament and an unwritten constitution. The prerogative of sovereignty was still there, but it was used only to secure the concurrent circulation of both gold and silver coin. When the impracticality of bimetallism finally became manifest, state policies in the 19th century swung over to gold monometallism and relegated silver to a subsidiary role (Shaw [1896] 1967, p. 164; Timberlake 1988).

Norms for Money in the U.S. Constitution

The place of legal tender in the U.S. Constitution reflects English experience, also that of colonial America and of the continental government in the post-Revolutionary era. The debate in the Constitutional Convention over the monetary powers of the states and of the federal government reflected various principles. Everyone wanted to constrain severely the issue of "bills of credit" (fiat paper money). Some delegates wanted to leave the question of their issue to the discretion of the federal Congress, but to deny such notes legal-tender status. Others wanted to prohibit them explicitly; while still others wanted to leave out reference to them altogether on the ground that if they were not part of expressed powers their issue would be severely limited but not barred entirely in case of emergency (Breckenridge [1903] 1969, pp. 76–85; Siegan 1987, pp. 23–26).

The money powers that the Constitution, as finally ratified, allowed Congress were, first, to coin money; second, to "regulate" (that is, to specify) the legal value of the coins in terms of a number of dollars. This coinage was limited to gold and silver. The Constitution also gave Congress the power "to borrow money on the credit of the United States" (Article I, Section 8). However, this power is not a "money power." For, though Congress borrows "money," the word money means "real income" or "real resources" for which the money is only a medium. In short, this power is a fiscal power and has nothing to do with creating money (Christiansen 1988, p. 427).

In the 70-plus years between the ratification of the Constitution and the first issue of U.S. notes, or "greenbacks," the federal govern-

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ment on several occasions brushed against constitutional constraints with respect to the issue of currency. On two occasions it chartered Banks of the United States (1791–1811 and 1816–36). Both of these institutions were 80 percent privately owned and 20 percent federally owned, with one-fifth of their directors federal appointees. They were also much larger than their contemporary private competitors and had branches in every state where federal revenues might be collected or disbursed.

The Banks' constitutionality was a major concern in the debates over their creation and continued existence. Supporters defended them as constitutional on fiscal not monetary grounds. In doing so, they cited the first clause of Section 8: "The Congress shall have power: To lay and collect taxes, duties, imposts and excises, to pay the debts . . . of the United States." The constitutionality of both chartered Banks rested on their role as fiscal auxiliaries to the Treasury Department.

The Supreme Court upheld the Second Bank's constitutionality in the celebrated case of *McCulloch v. Maryland,* where the State of Maryland tried to tax the notes of the Baltimore branch and thereby drive it out of existence. The Court found that the Bank was a legitimate means for carrying out the fiscal powers of Congress (Dunne 1960, pp. 28–33).

Chief Justice Marshall wrote the famous majority opinion. First, he invoked the "necessary and proper" clause from the Constitution (Article I, Section 10) in order to justify the Second Bank's fiscal legitimacy. He thereby opened a Pandora's box of pestilences for future Courts to spread. Since the Bank was "necessary and proper" for carrying out the government's fiscal operations, it was constitutional. His synonyms for "necessary" included "convenient, useful, or essential," which, except for "essential," are not synonyms at all. The Bank's propriety, he wrote, rested on the argument that the ends it sought to achieve were "legitimate" and consistent "with the letter and spirit of the constitution" (Dunne 1960, pp. 29–31). That is, the ends justify the means.

If Marshall's interpretation is granted—and it certainly has arguable soft spots—it only justified the constitutionality of the Second Bank as a fiscal agent of the government, not as a central bank with positive control over the monetary system. The Bank's constitutionality, however, came again into question when it extended its fiscal operations to include regulatory powers over the banking and monetary system.

Some of those who recognized this emergence argued that such a development called for restraint rather than license. Henry Clay

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stated correctly in the Senate that Congress had chartered the First Bank only to assist the Treasury in its fiscal functions. "It is mockery," he exclaimed, "worse than usurpation, to establish [the Bank] for a lawful object, and then extend to it other objects which are not lawful. . . . You say to this organization, we cannot authorize you to discount—to emit paper—to regulate commerce, etc. No! Our book has no precedents of that kind. But then we can authorize you to collect the revenue, and, while occupied with that, you may do whatever else you please!" (*Annals of Congress*, 11th Congress, 3rd Session, pp. 212–13; Timberlake 1978, p. 10).

Where the First Bank lost its bid for renewal in the Senate, the bill for renewal of the Second Bank's charter passed both Houses of Congress on two different occasions but was vetoed by President Jackson both times. Jackson may have had a prejudice against banks. Nonetheless, the reasons he gave for his vetoes had cogency. First, he contended that the monetary powers of the Bank were excessive and not restrained properly by its charter. Second, he did not admit its constitutionality through the "necessary and proper" loophole used by Chief Justice Marshall. The Bank was no longer a necessary fiscal institution at the time (1832), his veto message argued, because the national debt had almost been paid off. Therefore, the Bank could exist only for private profits, in which case government sponsorship and involvement were improper. Third, he argued that the Bank's execution of monetary powers as an agent of Congress was outside of Congress's constitutional powers. The mint was the institution to coin money, and "Congress passed laws to regulate the value thereof." In any case, the financial powers that the Constitution gave Congress had to be exercised by Congress; they could not be delegated to a corporation (U.S. Congress, 22d Congress, 1st Session, *Executive Documents*, Document No. 300, 16 July 1832, pp. 5–6; Timberlake 1978, p. 215).

Treasury Notes as Currency

Another monetary development in the first half of the 19th century was the issue of Treasury notes by the federal government. On several occasions, beginning with the War of 1812 and extending into the period between the end of the Second Bank and the beginning of the Civil War (1837–61), Congress authorized the U.S. Treasury Department to issue these notes as fiscal expedients—to meet unforeseen demands on the Treasury before revenues could be raised through conventional channels. Nominal amounts of notes appeared in the years 1812–15, again in the period 1837–42, in 1846–47, and

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in most of the years between 1857 and 1861 (Dunbar [1897] 1969, pp. 302–5).

These notes were currency. They looked like conventional paper money of the period and, when issued in "small" denominations, were used as hand-to-hand currency. Because most of the notes were issued in large denominations (only rarely in denominations below $20), and also because most of them paid market interest rates, many observers questioned whether they were money or "investments." These features, plus the fact that they were receivable for government dues, made them very attractive to banks who used them as reserves for the expansion of their own notes and deposits, and as clearing media for adverse balances with other banks. The notes that the banks then issued were in the lower denominations that households and businesses needed for their daily transactions; so the moneys that the general public saw were commercial bank notes (Timberlake 1978, pp. 120–23).

The Treasury notes had other features that limited their monetary impact. First, they were authorized and issued in very limited quantities. In any given year, the least amount issued was around $3 million and the greatest amount was about $20 million. Rarely if ever did the stock of outstanding Treasury notes exceed 10 percent of the federal government's expenditures for the year. Second, in addition to being a tender only for payments due the government, the notes were ordinarily not reissuable. Third, most of the time the acts authorizing the notes provided for their funding into long-term conventional securities. If their issue was repeatedly authorized over several years, Congress inevitably saw to their retirement by an explicit funding act (Dunbar [1897] 1969; Timberlake 1978, pp. 69–77).

These notes in their limited quantities and tenures were largely innocuous. Indeed, the circumstances of their issues tended to make them somewhat counter-cyclical (Timberlake 1978, pp. 72–73). No court cases ever tested their constitutionality for the very good reason that no one except the federal government, which had issued them, was ever forced to accept them. Banks readily held them as reserves, and their currency with the federal government gave them sufficient acceptability for virtually any private transaction.

Legal Tender Issues during the Civil War

The legal tender issues that the federal government made during the Civil War were of an entirely different genre. The most significant feature of the U.S. notes ("greenbacks") was the provision that they be legal tender for all debts public and private; that is, they were *full*

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legal tender. The second difference between them and the earlier Treasury notes was their sheer volume. All told, Congress authorized $500 million by the Legal Tender Acts passed between 1862 and 1865. Their total outstanding dollar value in 1865, therefore, was on the order of 50 times the outstanding average volume of Treasury notes for the years in which the latter were issued. The third feature that distinguished them was that they were indefinitely reissuable; and, fourth, they were non-interest bearing. The property of being full legal tender was, of course, the most questionable aspect of their constitutionality. It was bound to be challenged in the courts, and it was, both at lower levels and in the Supreme Court (Hunt 1903, pp. 59–139; Breckenridge [1903] 1969, pp. 114–37; Siegan 1987, pp. 29–39).

Wesley C. Mitchell, in his *History of the Greenbacks*, spelled out the legislative history of the Legal Tender Acts. The bill authorizing the first Act was introduced by Elbridge G. Spaulding, a Buffalo banker. It was almost defeated in the House Committee of Ways and Means, and had other stiff opposition in Congress. In searching for arguments to justify so radical a departure from accepted practice and constitutional mores, Spaulding hit upon "the necessary and proper clause." The bill for the U.S. notes, he alleged, "is a measure of *necessity* and not one of *choice*. . . . We will be out of means to pay the daily expenses in *about thirty* days, and the committee do not see any other way to get along till we can get the tax bills ready, except to issue temporarily Treasury notes" (Mitchell 1903, p. 47).

Spaulding and his cohorts, who sponsored the full legal tender provision, went to extraordinary lengths in arguing for the constitutionality of the notes. The substance of their case was that Congress could do virtually anything that was "necessary" to put into force its expressed powers.

Mitchell supplied evidence that soundly rebutted their arguments. He noted that "the issue of legal-tender notes, being neither a tax nor a loan, came under neither of [the] express grants" to tax or to borrow. A second argument—that the earlier issues of Treasury notes implied the right to make the notes full legal tender—was denied by the fact that previous issues of notes had been accepted without being full legal tender (Mitchell 1903, pp. 52–54).

By the time of the Legal Tender decisions, the Court also had in front of it the experience of the Treasury notes issued by the Confederate States of America. These notes had imitated the pre-1860 U.S. Treasury notes; they were tender only for payments due the Confederate government (Dunne 1960, p. 69n.). Nevertheless, they had suffered no lack of acceptance as long as the Confederate

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States themselves survived, and they had depreciated less than the greenbacks.

Congressional opponents of the bill also pointed out that the resulting inflation would cause a real wealth redistribution, which in itself was unconstitutional and immoral. In addition, inflation would find the government paying substantially more to buy its war materials and services. The plea of "absolute necessity," however, won the day for the persistent proponents of the bill. It won over Secretary Chase, as well, and thereby made the bill an "administration measure" (Mitchell 1903, pp. 59–63).

"Necessity" had some validity insofar as taxation was concerned, although it was Congress's blunder in not having provided for new taxes in the special session of 1861 that rendered current tax revenues insufficient. However, the bill's supporters also dismissed the possibility of the government raising the necessary revenues by borrowing. Without even attempting to pursue this alternative, they alleged that (Horrors!) the bonds might sell below par, maybe at a discount of 25 to 50 percent (hyperbole) when issued at 6 percent interest. Mitchell observed the contradiction. "It is curious," he wrote, "to note the naiveté with which the most strenuous supporters of the legal tender bill asserted in one breath that it was a measure of sheer necessity, and in the next breath admitted the existence of alternatives" (Mitchell 1903, pp. 66–67).

Spaulding's allegation that the government would be out of means in 30 days proved to be a gross exaggeration. The Legal Tender Act did not pass until 48 days after Spaulding's ominous forecast, and no notes were issued for 34 days after the bill was signed into law (Mitchell 1903, p. 73). "Necessity" was stretched to cover any ephemeral "emergency" that would lend itself to congressional pragmatism.

The Supreme Court at the time of the first legal tender decision consisted of eight men. The Chief Justice was Salmon P. Chase, who had been Lincoln's Secretary of the Treasury at the time the Legal Tender Acts were passed. As Secretary in 1862, Chase had "reluctantly" granted their constitutionality. As Chief Justice in 1870, he led the majority of the Court that in the case styled *Hepburn v. Griswold* (8 Wall. [U.S.], 603) decided five to three against their constitutionality (Breckenridge [1903] 1969, p. 127; Siegan 1987, pp. 31–32). The *Hepburn* decision held that greenbacks were not legal tender for fulfillment of contractual obligations entered into before passage of the Legal Tender Acts. The Court did not adjudicate, and thereby it left undecided the question of the validity of such contracts entered into after the Acts (Kemp 1956, p. 26).

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The Court in the *Hepburn* case held the following: (1) The power to bestow legal-tender quality on the notes was not incident to the coinage power; that is, issuing the notes did not require that they be made legal tender in the mode of gold and silver coins. They were not coined, but printed and issued as paper currency. (2) The war power requiring large expenditures of money was no more necessary for the issue of notes than any other governmental power to spend money. (In fact, in the four years between 1861 and 1865, interest-bearing debt increased by $2,153 million, while the non-interest-bearing legal tender notes increased by $458 million [U.S. Dept. of Commerce, *Historical Statistics of the United States* 1958, p. 721]. Thus, interest-bearing nonlegal tender debt was 82 percent of total debt and could have been 100 percent.) In so deciding, the Court observed that some notes had circulated that were not full legal tender, and these notes had not passed at a discount relative to the full legal tender issues. Therefore, the notes would have served the government's purposes just as well if they had been made a tender only for payments to the government as were the former Treasury notes. (3) Because the legal tender feature impaired the obligation of contracts, it violated the constitutional proscription against "bills of credit" (Article I, Section 10, 1) and the Fifth Amendment: "Nor shall any person be deprived of life, liberty, or property without due process of law" (Breckenridge [1903] 1969, pp. 128–29; Siegan 1987, p. 30; Hepburn 1924, pp. 275–80).

Supreme Court Reversal

Shortly after the Supreme Court ruled in the *Hepburn* case, Congress enacted a law that increased the number of justices on the Court from eight to nine. One justice had also retired, leaving two seats open. President Grant thereupon appointed two new justices who were in accord with his position that the Legal Tender Acts were constitutional.

The erstwhile minority on this question thereupon became a majority. On a motion from the Attorney General for further argument on the constitutionality of legal tender cases still undecided, the Court in 1871 in the case of *Knox* v. *Lee* reconsidered and subsequently reversed its previous position (Siegan 1987, p. 32; Hepburn 1924).

The five-to-four majority of the Court that now sanctioned government issues of legal tender notes based its decision on essentially the same arguments that had appeared in Congress nine years earlier. It also held that U.S. notes were legal tender for fulfillment of con-

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tracts made before passage of the Legal Tender Acts (Breckenridge [1903] 1969, pp. 131–32; Siegan 1987, pp. 33–34; Dunne 1960, pp. 77–81).

A new element entered the picture here. Not only were the notes legal tender, but the Court held that the question of their issue was "political" and not judicial, and therefore depended on Congress's estimate of the urgency of the express power it was exercising. "Thus," Dunne noted, "judicial appraisal of legal tender began by considering it as a provisional wartime expedient and closed by investing it with a legitimacy that was both permanent and *beyond judicial control*" (Dunne 1960, p. 83; emphasis added). The Court in rendering the *Knox* decision ignored Congress's memo to itself that U.S. notes were a temporary, wartime expedient (Hepburn 1924, p. 263), and also ruled that whatever Congress legislated as "necessary and proper" was not subject to judicial review. This ruling is all the more threatening to constitutional safeguards when the "necessities," as Congress perceives them, prove to be nothing more than political expediencies.

A third legal tender case, *Julliard v. Greenman*, was decided 13 years later in 1884. This case dealt with the question of whether the U.S. notes made legal tender in time of war were also valid as legal tender in time of peace. The Court ruled that they were by a vote of eight to one.

In so holding, the Court argued that the legal tender power was a prerogative of the sovereignty of the federal government. The *Julliard* decision stated:

> Congress, as the legislature of a sovereign nation being expressly empowered by the constitution to . . . "borrow money on the credit of the United States" and "to coin money and regulate the value thereof" . . . and being clearly authorized as incidental to the exercise of those great powers to emit bills of credit, . . . and to provide a national currency for the whole people . . . , and the power to make the notes of the government a legal tender in payment of private debts being one of the powers belonging to other civilized nations, and not expressly withheld from Congress by the constitution, we are irresistibly impelled to the conclusion that the impressing upon the Treasury notes of the United States the quality of being a legal tender in payment of private debts is an appropriate means, . . . consistent with the letter and spirit of the constitution, and therefore . . . "necessary and proper for carrying into execution the powers vested by this constitution in the government of the United States" [*Julliard v. Greenman*, 110 U.S. 421 (1884)].

Justice Stephen Field, the only justice remaining from the panel that previously held the Acts unconstitutional, wrote a dissenting

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opinion in the *Julliard* case. "Of what purpose, in the light of the tenth amendment, is it, then," he asked, "to refer to the exercise of the power by the absolute or the limited government of Europe or by the states previous to the constitution? Congress can exercise no power by virtue of any supposed inherent sovereignty in the general government. Indeed, it may be doubted whether the power can be correctly said to appertain to sovereignty in any proper sense as an attribute of an independent political community" (*Julliard v. Greenman*, 110 U.S. 466; Breckenridge [1903] 1969, p. 136).

Breckenridge noted, after citing Field's correct interpretation, that "this objection . . . gains force when it is realized that for an analogous act on the part of the English government, from which American ideas of sovereign power are drawn, we should have to go back to the reign of Henry VIII" (Breckenridge [1903] 1969, p. 136).

Political Influences in the Court's Decision

Supreme Court validation of the Legal Tender Acts had many political factors supporting it. The Grant administration and the Republican majorities in Congress openly favored constitutionality. All of the Supreme Court majorities that upheld the Acts were Republican appointees, and all of the favorable decisions in state courts came from Republican judges. The two appointees of President Grant who swung the Court to a majority that upheld the Acts were appointed because their pro-legal tender position was well known from state court decisions (Siegan 1987, pp. 32–34; Breckenridge [1903] 1969, pp. 130–32).

Economic events also contributed to judicial pragmatism. By 1870–71 the notes had been in use for eight years. Prices had long since adjusted to the new money; most of the changes in real values had been capitalized. Any shift in the legal relationships of money to gold might have upset the contemporary price level equilibrium (Dunne 1960, pp. 81–83). The premium on the gold dollar by this time was only 12 to 14 percent, which might have implied that resumption of gold convertibility for paper money was imminent. Nonetheless, the Greenback Party and its sympathizers in the Democratic Party in favor of "cheaper" money had begun to make political waves. The Republicans in the face of this developing ideology did not want to jeopardize their ongoing political control. They were, therefore, handmaidens to the monetary status quo (Timberlake 1978, pp. 108–19; Unger 1964, pp. 173–78).

In succumbing to political pressures, the Supreme Court emasculated every monetary principle that the Framers had included in the

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Constitution. If the justices who handed down the decisions in the latter two Legal Tender Cases had compared the character of the monetary system after their decisions with the system that the constitutional Fathers clearly had envisioned, they would have had to confess that they were guilty of blatant judicial improprieties.

Perhaps the most notorious and fallacious line of argument used to support the *Juilliard* decision is as follows:

1. The federal government through the Congress has the right to *borrow* "money."
2. It has, therefore, [a complete non sequitur] the right to *issue* paper money ("circulating notes") for the money borrowed.
3. It also has the power to coin metallic currency and declare the value thereof.
4. Because Congress has both the right to issue "circulating notes," which are currency, and the power to impress gold or silver coin as legal tender, "under the two powers, taken together [sic], Congress is authorized to establish a national currency, either in coin, or in paper, and to make that currency lawful money for all purposes" (*Juilliard v. Greenman*, 110 U.S. 421 [1884]).

Alva R. Hunt cited this argument as conclusive in his treatise, *The Law of Tender* (1903, p. 137). It is, however, nothing but fatuous nonsense parading as judicial "logic."

James Madison in *The Federalist* (No. 44) stated explicitly just what the Framers had in mind:

> The extension of the prohibition to bills of credit must give pleasure to every citizen, in proportion to his love of justice. . . . The loss which America has sustained since the peace [after the Revolution] from the pestilent effects of paper money . . . constitutes an enormous debt against the states chargeable with this unadvised measure, which must long remain unsatisfied; *or rather an accumulation of guilt, which can be expiated no otherwise than by a voluntary sacrifice on the altar of justice of the power which has been the instrument of it* [Madison 1971, p. 227; emphasis added].

In the light of such a powerful denial, is it even conceivable, much less arguable, that the Constitution "clearly authorized [Congress] to emit bills of credit and provide a national currency . . . and make the notes of the government a legal tender in payment of private debts" as the *Juilliard* decision asserted, and as Chief Justice Chase had claimed in a previous decision? (*Veazie Bank v. Fenno*, 75 U.S. 548; Christiansen 1988, pp. 429–30). In no event did the Framers set up what they felt was an impregnable document only to subvert it

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with a "necessary and proper" clause. This clause meant *eminently* necessary and *strictly* proper. It was not a license to allow future Courts a means to excise all the vital principles that protected the individual from the state (Siegen 1987, p. 38). Nor could the Founding Fathers have denied the states the power to emit bills of credit and then implicitly condoned the same power for the federal government—a political entity they trusted even less. As William Brough stated: "Had a paper circulation been contemplated, discussion upon this point, followed by the embodiment of specific rules for its regulation, would have been inevitable" (Brough [1896] 1969, p. 131).

The Relationship between Sovereignty and Money

Another economist of the era, A. Barton Hepburn, in his book, *A History of Currency in the United States*, first published in 1903, summarized the Legal Tender decisions both pro and con. He then analyzed the ultimate decision that argued the constitutionality of the greenbacks on the basis of governmental sovereignty.

If Congress had the power claimed by the Supreme Court majority, Hepburn argued, it could have issued fiat paper notes unceasingly and paid off its bonded indebtedness with them no matter how much the notes depreciated. "Why then," Hepburn asked, "should the government continue paying interest on the bonds when the principal might be paid in a day?" He cited George Bancroft, author of *A Plea for the Constitution*, who stated that the "unalterable purpose of the framers of the Constitution [was] to prohibit legal tender paper. . . . [The federal government's] powers were clearly *limited*. It had no inherent sovereignty, but only that delegated to it by the Constitution." Even European sovereignties, Bancroft pointed out, "had *not* the power of making notes legal tender" (Hepburn 1924, p. 266).

Field's, Breckenridge's, and Hepburn's interpretation of the quality and disposition of sovereignty concurred with that of James Monroe, a member of the Constitutional Convention and fifth President of the United States. In the book that he wrote near the end of his life, *The People, The Sovereigns*, Monroe analyzed the principles in the basic structure of American polity that served to distinguish the political culture of the United States from other republican peoples. He noted that both National and state governments were independent of each other, "and sovereign to the extent, and within the limit of specified powers. . . . Both governments rest on the same basis, the sovereignty of the people" (Monroe [1867] 1987, pp. 3–4).

Monroe's central thesis on sovereignty is a lesson for everyone who aspires to maintain the existence of a free society. "The terms

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Sovereignty and Government," he observed, "have generally been considered as synonymous." To Monroe and other Framers of the Constitution, however, separating the two was an essential feature for an enduring democracy. Only "by the institution of a government by compact, to which all the people are parties," Monroe argued, could sovereignty be maintained distinct from government. "Thus the Constitution becomes the paramount law, and every act of the government, and of every department in it, repugnant thereto, void" (Monroe [1867] 1987, pp. 7–8).

Monroe offered "two great principles [that are] fundamental and invariable, in regard to government, in which the people hold the sovereignty—first, that the government be separated from the sovereignty; the second, that it be divided into three separate branches, legislative, executive and judicial, and that each be endowed with its appropriate powers, and be made independent of the others" (Monroe [1867] 1987, p. 13). The import and direction of these words from a Founding Father are self-evident. This same argument appears in Edwin Vieira's recent study on the monetary powers of the Constitution. On the basis of much evidence, he concludes: "In America, only the people were 'sovereign'—and, therefore, the government's authority was non-existent in those [monetary] areas no matter what branch attempted to act" (Vieira 1983, pp. 83–85).

An even earlier writer than Monroe, Adam Smith, discoursed at length on the proper role of the sovereign. In his fundamental work on economics and polity, *The Wealth of Nations,* Smith devoted two full chapters to the functions of the sovereign and the legitimate means he had for obtaining the revenues due him.

The sovereign had three principal functions according to Smith. "First, the duty of protecting the society from the violence and invasion of other independent societies; secondly, . . . the duty of establishing an exact administration of justice; and, thirdly, the duty of erecting and maintaining certain public works and . . . institutions, which it can never be for the interest of any individual or small number of individuals, to erect and maintain." Such works consisted of good roads, bridges, canals, and harbors (Smith [1776] 1937, pp. 651, 682).

The sovereign would get revenues primarily by imposing various kinds of taxes, by obtaining rents from public lands, and by operating post offices. In time of war the sovereign's immediate need for resources was an excuse only to borrow in lieu of taxes, and not any reason at all to tamper with the currency. Devaluations and debasements of the currency cause "a general and most pernicious subversion of the fortunes of private people; enriching . . . the idle

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and profuse debtor at the expense of the industrious and frugal creditor." Depreciation of the currency, Smith concluded, was a "treacherous fraud" (Smith [1776] 1937, pp. 883, 885). In 168 pages of text Adam Smith found no license for the sovereign either to debase or devalue the coin, or to issue legal tender paper money. The sovereign had prerogatives and rights, but none with respect to the currency.

In another section in which he discussed the gold and silver contents of guineas and shillings, Smith observed that the government's role was only that of "reforming" the coinage to adjust for wear and tear on the coin. Just two years earlier (1774) such a "reformation" of the English coin had occurred by which gold became the *standard* money metal, while silver was invested with legal tender quality only for small-sum transactions (Smith [1776] 1937, pp. 40–46). This action had included no reduction of the metallic content of the coinage (Breckenridge [1903] 1969, pp. 46–48). Indeed, the gold value of the pound at the English mint was essentially constant from 1665 to 1914 (Jastram 1981, p. 9).

Smith admittedly was not a political theorist. Nonetheless, he was a complete scholar of his time, and his exegesis therefore reflected current norms for what was regarded as acceptable practice in the sovereign's management of the state.

The alleged "prerogative of the sovereign over the coinage" had been anything but an unlimited power since the time of Elizabeth. In no sense was it the absolute power implied by the U.S. Supreme Court's decisions. It was, in fact, nothing more than a license to make minor adjustments in the mint values of gold and silver that would keep both metals current in the monetary system. The technological development of paper currency and paper checks obscured for later observers just how important marginal mint-price adjustments had been for the continued presence of both metallic coins in the payments system. These occasional and fractional changes gave latter-day 19th century jurists the false notion, or perhaps only the false excuse, that the state could do anything it wanted to the mint values of the currencies (Vieira 1983, pp. 102–18).

The Redress of Monetary Grievances

What could the Supreme Court have ruled to maintain practical monetary equilibrium in 1871, given the outstanding quantities of notes? It could, first, have avoided making "ex post facto Law or Law impairing the obligation of Contracts" [Article 1, Section 10] by acknowledging that contracts drawn prior to the Legal Tender Acts were payable in the medium stipulated by the contract, as the first

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Legal Tender decision had ruled, and that contracts not specifying the means of payment were payable in whatever was current money when the contract was made (Kemp 1956, pp. 25–32). Since most of the contracts in force at the time of the legal tender decisions had been made after the Legal Tender Acts were passed, payments in depreciated paper currency would have provoked no grave injustice nor financial disequilibrium. In any event, the terms in every contract should have determined each case and thereby minimized real losses due to inflation (Brough [1896] 1969, p. 135).

The Court could have declared the greenbacks unconstitutional as a forced tender for private debts, but a valid tender for all payments due the government. Congress could then have enacted a law that had the Treasury convert all the notes into the older form of Treasury notes before reissuing them. When the government achieved resumption of specie payments (as it did on January 1, 1879), the notes would have been simply another form of limited legal tender government currency, similar to national bank notes and silver currency, maintained at par with gold by redemption on demand. Such a policy would have allowed the economy to adjust with hardly a tremor. As the episode ended, however, the constitutional barriers to government-issued fiat paper money had been breached forever.

The general thrust of policy by the three branches of the federal government at the time of the Legal Tender Cases was to work the limits and margins of the Constitution by means of any conceivable chain of reasoning in order to extend the federal government's authority and influence over the monetary system. The three branches should have sworn fealty to the Constitution and taken every precaution to preserve its original monetary principles, even in the midst of the Civil War. Instead, Congress passed laws in 1862 and 1864 prohibiting private coinage of both fractional currency and of gold and silver. It passed a National Banking and Currency Act (1863 and 1864) that effectively proscribed the competitive issue of bank note currency and severely regulated bank enterprise. The Act also specified the limit of national bank note currency ($300 million) and set up bureaucratic machinery to allocate this total among the national banks. Finally, it "temporarily" issued $500 million of full legal tender paper currency and kept $347 million of it in existence forever. Congress did all these things on its assumed prerogative of sovereignty. In fact, no branch of the government had sovereignty; and even if Congress itself had had the sovereignty the Supreme Court claimed for it, it had no express power thereby to violate the monetary system. There was no precedent in Anglo-Saxon law for what was done. "Sovereignty," stated Breckenridge, "in the sense

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in which it had inhered in the English kings, had passed to the people not to the government of the United States. So much of the right of English monarchs as had been derived from the doctrine of unlimited and prerogative power was wholly [beyond] the sphere of federal power" (Breckenridge [1903] 1969, p. 91).

The Government's "License" to Create Money

Economists, with a few exceptions (Kemp 1956; Christiansen 1988), have not examined the monetary norms of the Constitution, nor contrasted them with judicial interpretations that emerged following the Legal Tender Acts. They have deferred judgment to the expertise of political scientists and jurists. Most of the latter have accepted the opinions and interpretations of the Supreme Court, which extended the federal government's discretion over the monetary system. Without enlightenment to the contrary, legal analysts have implicitly and innocently assumed that a monetary system must have human design through a ruling political authority. The legal tender decisions may have stretched the boundaries of the Constitution but, they argue, this license was a necessary adaptation to preserve a viable monetary system. Thus, economists have been demure, and jurists have been pragmatic. James Willard Hurst, for example, argues that the Framers were primarily concerned with control over the money supply when they inserted the money clauses into the Constitution. His arguments, however, are ex post—not ex post the Constitution, but ex post the intrusions of Congress and the Executive in the Civil War era and thereafter, and ex post the Supreme Court's ratification of Congress's role (Hurst 1973, e.g., pp. 12–13, 35–37, 42–46, *et passim*; also Hunt 1903, pp. 61–64; and Dunne 1960, pp. 100–103). Over the decades since the 1880s, the notion that money must be formally managed—that its presence cannot be trusted to the spontaneous forces of the market—has become the conventional wisdom.

This conclusion, regardless of the majority that accepts it and its specious juridical "validation," flies in the face of money's origins. Money, like language and law, unquestionably arose as a product of human interaction in economic markets, not only without an assist from political authorities, but often in spite of them. This emergence suggests not only the possibility and feasibility of a market-determined monetary system, but also the desirability. A system that arose spontaneously is hardly likely to be improved by the coercive designs of political and judicial planners.

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Nonetheless, whenever monetary systems appeared, the state was not far behind. Invariably, the state's presence and control was marked by debasements and inflations, until the momentous constitutional sea-change that took place in England in the 17th and 18th centuries. Metallic standards became the means by which constitutional norms constrained the English monarchs' monetary excesses. American experience accepted and enlarged upon the English original.

The Civil War and post-bellum adjustments proved to be too much for constitutional barriers. From 1862 on, law after law and judicial interpretations thereof constantly eroded the monetary norms of the Constitution, until today the U.S. monetary system is the complete antithesis of everything the Founding Fathers prescribed.

The evidence collected in this paper argues that the U.S. government has never had any license to create money. The alleged prerogative of the state to control the monetary system through a legal tender power is a juridical myth. Only people have sovereignty, the Founders stated; and the only way that the people can "control" the monetary system is to divest this power (without license), which the federal government has assumed, and redirect it into its proper channel by an explicit act. The sovereignty of the people is seen in free, private, competitive markets for money as well as for all other goods and services. Only economic markets operating under the rule of law can provide a vehicle of the requisite kind. Ultimately, scholars in retrospect will acknowledge this principle. "Every civilised country," they will state, "has learned to separate the production of money from the necessary and proper functions of the state."

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From a Random-Walk Monetary Standard to a Monetary Constitution

David I. Fand

> She tells them of Evil and Sin, and other unpleasant facts,
> They constantly try to escape
> From the darkness outside and within
> By dreaming of systems so perfect that no one will need to be good.
>
> —T. S. Eliot

A Random-Walk Monetary Standard

What is meant by a "random-walk monetary standard?" Does it mean that monetary policy is a random choice? Or that the central bank acts randomly? Of course not. Certainly it does not imply that the Federal Open Market Committee (FOMC), when it meets every month for policy decisions, randomly chooses a policy. Neither monetary policy nor the monetary action by the Federal Reserve is random in that sense.

I believe that when the FOMC meets, it examines thoughtfully and thoroughly the economic outlook and the current problems; then it acts in a careful and responsible way. Unfortunately, the FOMC—the policymaking arm of the Federal Reserve—does not have a monetary policy. We do not know whether the FOMC is committed to stabilizing the price level, focusing on a particular rate of employment growth, maintaining a band for some exchange rates, pushing for a certain level of real output growth, seeking to avoid a rise in the unemployment rate, or some other seemingly appropriate short-term goal. Indeed, the facts suggest that the FOMC meets each month,

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considers a range of monetary and credit issues and, after some discussion, arrives at a set of decisions.

The public, therefore, is always kept in the dark concerning the Federal Reserve's monetary policy. Indeed, it can be said that even Federal Reserve governors and the other members of the FOMC do not know the precise contours of monetary policy. What they are doing, in effect, is responding to the fires that rage each month. The FOMC members may have an idea of how they would respond to a typical fire, but they do not know which fires will be burning next month, three months from now, or nine months from now. Thus, even the FOMC members may not know what monetary policy will be a year from now, let alone two years from now. It is even conceivable that the manner in which an individual FOMC member will respond to a fire is not known to the member: Individual members may be under such great pressure at a particular point in time that they may not vote the way they would like to vote. As such, FOMC members do not know which fires will be burning, and they do not know with certainty how they will vote when a particular fire does erupt. It is in this sense, then, that our present fiat money regime can properly be called a "random-walk monetary standard," an expression coined by Axel Leijonhufvud (1984, p. 23).

Under this standard, the uncertainty about monetary policy grows rapidly as we look to the future. We are less in the dark concerning the thrust of monetary policy this month or next month. We are more in the dark concerning policy six months from now. And when we focus on what policy will be nine months from now, it becomes darker still. Certainly, there is not a ray of light when we consider what policy may be a year from now, or two years from now. For these reasons, some observers conclude that the uncertainty of monetary policy grows exponentially as we look to the future.

To summarize, by a random-walk monetary standard we mean that we do not know the content of the FOMC's monetary policy; we do not know the FOMC's commitment to that policy; and we do not know the longer-term policy goals of the FOMC. What we do know is that the FOMC is a committee of informed, hardworking, civic-minded, and well-intentioned officials who are trying to arrive at the best (short-term) solutions to the current problems without unambiguous long-term monetary objectives or a clearly articulated monetary policy.

The Random-Walk Monetary Standard Elaborated

In the present environment, monetary authorities decide one period at a time whether to accelerate monetary growth, whether to

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keep it relatively flat, or whether to decelerate money stock growth. Policymakers focus primarily on current economic conditions and immediate political pressures. Future money growth rates are left unspecified, and the monetary officials who will be in charge when the time comes will either accelerate or decelerate as they see fit. The only rule governing this process is that, at each point in time, those who are responsible for monetary policy choose the convenient and expedient thing to do.

There is no scientific or rational way to forecast future inflation rates or the price level in this kind of monetary regime. The uncertainty attaching to any forecast of future prices will tend to grow exponentially as the number of months or years increases. In other words, a forecast of 12 months will be more variable than a forecast of 3 months, and a forecast 10 years away is a lot more uncertain than one 5 years away. Different transactors in the market guess differently as to the state of expectations, and the market is apt to be somewhat incoherent. Thus, in this kind of environment the value of the dollar—10 years from now—is not really a fit subject for economic analysis. It will depend on the course of big government, mercantilist and protectionist pressures within the country, international geopolitics, and turf battles between the Treasury and the Fed. Yet in an economy such as ours, people constantly are forced to make decisions involving the future price level.

A random-walk monetary standard has several notable consequences for the economic system. Long-term bond markets will tend to thin out, and markets for some kinds of instruments may even disappear. The raggedness of price adjustment in an inflation puts noise into the relative price mechanism and makes it more difficult to allocate or coordinate resources efficiently. Frequent changes in monetary policy will probably cause more frequent and perhaps more costly mistakes in output decisions. Output mistakes adversely affect current profits, and the expectation of their continuance under a random-walk monetary regime reduces the incentive to invest in long-term capital. In this kind of monetary regime, long-term nominal financing may subject an entrepreneur to great risks. Under these conditions, both productivity and capital accumulation will be negatively affected. Moreover, a random-walk monetary standard is likely to give rise to stagflation.

The ability to forecast inflation and to hedge against it (since it cannot be forecast with any accuracy in a random-walk regime) becomes more important to the success and survival of firms than efficiency and competitiveness in the production and distribution of goods and services. The selection of individuals for fame and fortune

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will change. Merger and acquisition experts and LBO specialists will be at a premium relative to marketing people, lawyers will see their incomes rise relative to product designers, and MBAs and accountants will be favored over production managers. Ambitious people will, therefore, reallocate their efforts and ingenuity.

Since the late 1960s, guessing correctly about inflation has been the way for many ambitious Americans to achieve great wealth. But all individuals cannot improve their living standards by playing the inflation game. Who will focus on productivity enhancing investment if real estate deals and inflationary tax shelters appear more profitable? Again, this is a recipe for stagflation.

In this monetary environment, the real outcome of private contractual agreements becomes very uncertain. Private agreements arranged through contracts become a less-effective, less-reliable method for reducing the risks, particularly of long-term ventures, to manageable proportions. And when contracting increasingly fails, many groups resort to political lobbying as a substitute strategy. Random-walk monetary mismanagement will bring general conditions in which all sorts of groups seek to obtain, by public compulsion, what private cooperation failed to achieve. Legislators will be swamped by demands to control prices and rents, to regulate ways of doing business, and to tax and subsidize. The nation becomes less efficient, just as the economy has become less efficient, in carrying out ordinary business; the political system loses legitimacy. This trend can continue until the public demands new constitutional constraints on government.

From Random-Walk Monetary Permissiveness to Fiscal Chaos

Our current random-walk monetary standard does not have any long-term anchor and is not based on any clearly articulated long-term policy. The standard leads inevitably to monetary permissiveness—a monetary no man's land based on irredeemable, inconvertible, anchorless, fiat money issued by a politically accommodating central bank that may inadvertently be undermining the foundations of the market economy and a stable society.

Fiscal chaos—persistent budget hemorrhage and continuing large deficits—will ultimately lead to a monetary acceleration designed to monetize the public debt. It is also true that monetary permissiveness—a politically accommodating fiat money—will generate a climate in which unsustainable budgetary deficits and fiscal chaos emerge. Unfortunately, the contribution of the monetary permissive-

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ness to the developing fiscal chaos is neither widely perceived nor generally recognized.

We cannot succeed in reducing our budget deficit if we continue with our random-walk fiat money system. There is a widespread concern that our monetary officials will be pressured to accommodate and ratify the fiscal demands of politicians. Many observers fear that our current $100–$150 billion budget deficits will lead to a monetary explosion and an acceleration of inflation.

Monetary institutions that politicians can manage for short-term political objectives undermine the integrity and the fiscal discipline necessary to achieve and maintain a balanced budget. We will not solve our budgetary hemorrhage—widely perceived as dangerous—without simultaneously changing our politicized, accommodating, discretionary, managerial, random-walk fiat money standard. In brief, existing U.S. monetary institutions—characterized by the lack of any long-term policy rule—are incompatible with the fiscal integrity and discipline required and necessary to balance the budget.[1]

The random-walk monetary standard and the absence of a long-term anchor and long-term policy are breaking down the extraordinary consensus regarding price-level stability that prevailed just a decade ago. Many forces in the economy are now *privately* supporting more inflationary policies and *publicly* advocating more expansionary policies. They argue that much of the Third World's foreign exchange earnings are needed to pay the interest on their debt and that their export earnings would rise, following more expansionary policies in the United States. Another argument is that many banks with Third World debt in their portfolios would have fewer nonperforming loans if we had a stronger economy.

Further arguments for monetary ease are (1) that debtors who have borrowed heavily in the 1970s, expecting a continuation of high inflation and high interest rates, would find it less costly to repay these loans if we had a more vigorous economy; and (2) that many manufacturing industries that have been losing market share would find it easier to increase their sales, revenues, and profits if we had a stronger economy, more demand, and more inflation.

[1]Throughout the 1980s, the influential elites in this country have apparently believed that the monetary system is being properly managed and is in reasonably good condition and that it is the fiscal mechanism that is out of control. Our contention is that this view is 180 degrees wrong. It is only because we have a politically accommodating monetary system that the politicians can spend and not worry about the fact that their proposed expenditures have no immediate relation to their likely revenue sources. It is precisely the monetary permissiveness—a politically accommodating monetary system—that creates the environment in which budgetary hemorrhages and fiscal chaos emerge.

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Finally, and perhaps most important, is that many "realists" do believe that the easiest and more efficacious way of dealing with our budget deficit is to monetize it through inflation. Thus, some people even view a rise in inflation in positive terms. These expansionists believe that a higher inflation rate would ameliorate our budgetary and fiscal problems and, to the extent that there is some bracket creep still left in the tax code, the revenue increase from inflation may exceed the inflation rate.

Thus, inflation may reemerge because of the many forces conspiring for more aggressive expansionist policies, while monetary policy is primarily reactive and not based on long-term price stability. Should we again confront double-digit inflation, many more citizens will recognize that our random-walk monetary standard is deeply flawed and conducive to monetary permissiveness. I hope they will also realize that our irredeemable, anchorless, fiat money—the random-walk monetary standard—is a precondition for the continuing budgetary hemorrhage and fiscal chaos that undermines the foundations of a market economy and a stable society.

We suffered through a terrible bout of double-digit inflation and double-digit interest rates in the 1970s; and in order to disinflate the economy, we struggled with double-digit unemployment in the 1980s. But all this suffering will be in vain if we again confront double-digit inflation in several years as a direct consequence of a politically accommodating random-walk monetary policy.

Should double-digit inflation reappear, there will be an almost undeniable realization that we have to take the fiat money system away from the bureaucrats and politicians, that we have to introduce constitutional constraints in order to depoliticize monetary policy, and that we need to tamper-proof our money politically so that politicians will not be able to manage and manipulate monetary policy for short-term political ends.

Is the Current Inflation Rate an Adequate Measure of the Underlying Inflation?

Concern about the longer-term consequences of the random-walk monetary standard may seem unwarranted in light of the current consensus view that monetary policy in recent years has been conducted in a relatively proper way. The present inflation rate of 4 to 4.5 percent is viewed as relatively low, the unemployment rate of 5.3 percent is at the lowest level in 14 years, and the labor force participation rate of 66.0 percent and employment rate of 62.6 percent are at their highest levels in our history. Not surprisingly, most peo-

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ple regard the current economic situation as favorable. The Federal Reserve gets a good grade for its conduct of monetary policy.

This favorable image, however, has more to do with appearance than reality. In fact, our random-walk monetary standard is generating a high inflation rate and great fluctuations in real output, but these effects are being offset, and masked, by several independent exogenous and relatively fortuitous developments.[2]

The most important of these favorable exogenous factors is the emergence in the 1980s of a relatively elastic supply function. The aggregate supply of output has become relatively more price elastic because it is possible to produce additional output overseas (i.e., in Korea, Mexico, Singapore, and Taiwan) at relatively constant costs. Consequently, an increase in aggregate demand in the United States does not cause bottlenecks, shortages, and price jumps but results instead in a larger trade deficit. The trade deficit serves, in part, as a balancing mechanism. Rapid growth in U.S. demand is associated with a larger trade deficit, and restrained U.S. demand growth is associated with a smaller trade deficit. Fluctuations in the trade deficit take the place of what would otherwise show up as jumps in the inflation rate and fluctuations in real output. The Fed is getting a very good grade for its conduct of monetary policy because of the "apparent" price stability.

The Federal Reserve receives high marks on monetary policy because people are looking at a thermometer that is not adequately gauging the full impact of the inflationary pressures and output fluctuations that its policy produces. If our hypothesis is valid and the favorable exogenous factors, which we detail below, have increased aggregate supply and its elasticity, yet we still have a 4.0 to 4.5 percent inflation, monetary policy must certainly be viewed in a far more critical manner.

Aggregate Supply Changes Suppress the Inflation Rate

There may be a significant wedge between the appearance of relatively stable non-inflationary growth in the economy and the underlying reality of fluctuations and volatility in monetary growth and aggregate demand. More precisely, several exogenous factors enhance aggregate supply and increase its elasticity and, therefore, do not allow the price level to rise as much as it would without these factors. These relatively exogenous factors are independent of the Fed policy and, more importantly, may not last forever.

[2]Independent of monetary policy, they may be related to our defense and foreign policy.

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One factor that has helped increase aggregate supply and lower the inflation rate is the crack in the oil cartel and the resulting enormous reduction in the price of oil. Oil is selling now for less than half of what it was several years ago. This factor has had a direct effect in lowering the inflation rate. The oil price decontrol and the weakening in the OPEC cartel hold down and suppress pressures that would otherwise be reflected in a rising inflation rate.

A second factor that has been helpful in holding down the inflation rate is the commodity supply revolution. There has been a significant revolution—increasing supply—throughout the world. Some have called it the green revolution, but it also has an impact on industrial products. Whether we have taught other people the newer technology, or the new technology has spread on its own, the fact remains that many commodities are currently available at much lower prices than they were, or were expected to be. And to the extent that commodity prices fall, they help suppress increases in the inflation rate.

The third, and perhaps the most important, factor in suppressing jumps in the inflation rate is the fact that the supply of aggregate output may have become much more elastic. There appear to be large quantities of resources available elsewhere in the world—that is, underutilized resources of labor and capital—and furthermore, the owners of those resources are apparently willing to hold dollars.[3] And so long as there are unused resources whose owners are willing to hold dollars, we can increase output somewhere in the world at relatively constant costs. In effect, we have an elastic (augmented) aggregate supply of output.

Under these conditions, even a substantial increase in aggregate demand may have very little impact on the inflation rate, but will lead to more output whether produced here or abroad. But if the increased output is produced abroad at relatively constant costs, it results in a larger trade deficit, with perhaps no change in the inflation rate.

Changes in the trade deficit, and especially of imports, may provide a more faithful measure of the underlying volatility in aggregate demand. In the past, these fluctuations in aggregate demand would be reflected in price level jumps, in shortages and bottlenecks, and in the inflation rate. At the present time, they are more likely to show up as fluctuations either in the deficit and, more specifically, in the volume of imports.

[3]If the owners of these unused resources are not willing to hold dollars, the dollar exchange rate will decline, and this effect on aggregate supply will no longer be operative.

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Another factor that has weakened the link between changes in monetary policy—money growth—and changes in aggregate demand has to do with velocity. To the extent that velocity declines, for whatever reason, whether it is because of declining inflation and/or declining interest rates, the link between money growth and changes in aggregate demand is weakened. And to the extent that this first link is weakened, the complete chain from Fed policy decisions on money growth to inflation is further weakened.

Finally, and most importantly, we now pretend that a 4.0 to 4.5 percent inflation is the equivalent of either low, or zero, inflation. This pretense is partly because we are comparing the 4.5 percent to the double-digit inflation of the early 1980s, and partly because the inflation of the 1980s has been associated with sharply declining unemployment and an astounding increase in employment. But the fact remains that 4.5 percent inflation leads to a doubling of the price level in about 15 years. This change is a far cry from either low, or zero, inflation and, if our hypothesis is correct, the current inflation would have been much higher were it not for the offsetting and fortuitous effects of the exogenous factors.

Monetarism I versus Monetarism II

The factors that we suggest as weakening the chain between money growth and the inflation rate involve two sets of links: One link is between changes in money growth and changes in aggregate demand; and a second link is between changes in aggregate demand and changes in the inflation rate.

The weakening of these two links is also responsible for the divergence between Monetarism I and Monetarism II, and dramatically highlights the difference between these two versions of monetarism. The older Monetarism I asserted that there were long and variable lags and that one could not readily use changes in money growth to forecast changes in economic activity. Monetarism I, the original monetarism of the 1950s, is the monetarism of the long and variable lag.

Monetarism II emerged in the 1970s, as many observers noticed that the growth of velocity in the postwar world was fairly steady, rising at about a 3 percent annual rate. Naturally, if one can safely assume that velocity is growing at a 3 percent rate, one may seek to use velocity behavior as a basis for either determining the proper policies with respect to changes in money growth or for making forecasts. Thus, if velocity is growing at a 3 percent rate, and real output, or capacity, is growing by 4 percent, then money cannot grow by more than 1 percent if we want zero inflation. And if we are willing

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to accept a 2 percent inflation rate, then money can grow by 3 percent. If velocity is indeed growing at a 3 percent annual rate, there is a basis either for determining policy concerning the proper growth rate of money or for making forecasts. In other words, the velocity growth postulated in Monetarism II lends itself to econometric forecasting. It also lends itself to a kind of fine tuning.

The four factors that have weakened the two sets of links between money growth and inflation mean that Monetarism II is at an end. Velocity declined abruptly and sharply in the early 1980s, and has been extremely variable over the last decade. Those who would have based either their recommended monetary policies or their econometric forecasts on a velocity growth of 3 percent would have been very wrong, as velocity declined by as much as 10 percent in some recent years. Imagine a monetary official basing policy on the assumption that velocity is growing at 3 percent when it is, in fact, declining by 10 percent. This mistake could make a difference in GNP of about 16 percent—a potential disaster. The decline of Monetarism II illustrates the factors that we have summarized in our analysis of inflation. These factors have weakened the links connecting money growth, aggregate demand changes, aggregate supply changes, and changes in the inflation rate.

In sum, there is a general feeling that the monetary authority has done a pretty good job in managing the economy over the last several years. But we must not overlook the fact that the economy benefited from a set of external factors that tended to lower and suppress the inflation rate.

Further Reasons for Abandoning the Random-Walk Monetary Standard

Several other considerations suggest that we move away from the present random-walk monetary standard toward a constitutional monetary system: (1) The behavior of prices in the 200 years before 1940 and in the period since 1940; (2) the two great monetary disasters experienced in the last 60 years, that is, the Great Depression (1929–33) and the double-digit inflation of the 1970s; (3) the political monetary cycle and the Heisenberg uncertainty principle; and (4) the public choice revolution and the rational expectations revolution.

1740–1940 versus 1940–88

Since 1940 the price level in the United States has shot up by a factor of approximately eight. Thus, if we set the 1940 price level as 100, it is now 800. On average, prices have escalated by a factor of

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eight in a period of less than 50 years. This eight-fold increase in prices is in sharp contrast to the prior 200 years. When we examine price-level behavior in the period 1740–1940, we find that there were substantial movements. There were periods when the price level went up more than 50 percent over a 10-year period, and there were other times when it declined. We certainly did not experience price stability in the sense of year-to-year stability; but, and this is crucial, over the entire 200-year period we did have price stability—that is, prices in 1940 were approximately at the same level that they were in 1740.

The relative stability of prices over the entire prior 200-year period, contrasted to the eight-fold escalation of prices in the recent 50-year period, provides a very good measure of failures of discretionary central bank management of monetary policy. Clearly this extraordinary escalation of prices that we have experienced in the last 50 years poses a severe threat to the long-term stability of the economy.

In addition, the Federal Reserve may have been guilty of perhaps a more serious misdemeanor, if not a felony, in the last 15 years. The Federal Reserve, following Concurrent Resolution 135, has followed extremely variable and volatile monetary policies (see Fand 1985). This concurrent resolution requires the Federal Reserve to announce its monetary targets twice each year before the House and Senate Banking Committees. Unfortunately, since the enactment of this resolution, the Fed has been extremely agile in defining new monetary aggregates, in redefining aggregates, in shifting from one aggregate to another, and in producing considerable and extensive monetary variables. But the bottom line verdict is that Federal Reserve policy has never been more volatile or more variable than since the introduction of Resolution 135. This erratic behavior since 1975 was ironically the response of the central bank to a resolution that was generally viewed as an attempt to introduce greater stability in Federal Reserve policy.

The Great Monetary Disasters

The Federal Reserve was initially set up to avert the monetary policy and banking failures that we periodically experienced under the National Banking System, as well as to achieve monetary stability. In time, the central bank came to be viewed as an institution to help maintain a stable economy, to maintain a stable price level, and to promote economic activity. It is, therefore, interesting to note that the two greatest monetary and financial disasters in our history are both attributable to Federal Reserve policy. There is general agreement that perhaps the single most important factor that produced

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the Great Depression of 1929–33 was Federal Reserve policy that allowed the money stock to decline by a third. Such a monetary deflation is simply unimaginable, considering that unemployment was approaching 35 percent and that the economy was literally hit by an economic atom bomb. Yet this is precisely the deflation that the Federal Reserve permitted to occur. Even the Fed itself will acknowledge that it bears a major responsibility for the Great Depression and the terrible consequences resulting therefrom.

We are still paying a price today for the suffering and pain of the Great Depression. We still have many "brain-workers"—to use a Marxist phrase— who believe that the Great Depression signified an economy dying from an advanced state of arteriosclerosis. These thinkers believe that free-market capitalism based on private enterprise does not work and is not viable—as evidenced by the Great Depression. There are many such thinkers today, especially in fields such as history, political science, sociology, and especially literature, who literally believe that the Great Depression clearly marked the death knell of free-market capitalism. And they further believe that somehow, because of wars and rearmament, or perhaps because of both hot wars and cold wars, we have kept this dying corpus of a market economy alive through what they would regard as socially inappropriate expenditures by the military-industrial complex. In their view, defense spending is primarily necessary to keep a sclerotic and moribund patient alive.

These thinkers continue to believe this analysis of the Great Depression even though it is clear today that almost every socialist economy is a failure and, further, that the only viable, productive, and functioning economies are those that rely heavily on markets and private enterprise rather than on bureaucracies. That these "brain-workers" can continue to believe in a "Marxist analysis" of the Great Depression is but partial evidence of the terrible price that we are still paying for the ravages of that disaster.

The other great disaster was the double-digit inflation of the 1970s. Here, many Fed officials would admit that they played a role in contributing to the breakdown of the international monetary system, and that the Fed must bear some of the responsibility for the extraordinary escalation in inflation.

The Political Monetary Cycle and the Heisenberg Uncertainty Principle

It is often suggested that we have had a political monetary cycle in U.S. history (see, e.g., Fand 1986, Poole 1986, Meiselman 1986a, 1986b). Put briefly, this theory hypothesizes that a politicized mone-

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tary authority, given a two-year lag between money growth and inflation and a six- to nine-month lag between money growth and output, would operate as follows: Approximately two years before the presidential election, the monetary authority would slow monetary growth; and six to nine months before a presidential election, the central bank would speed up monetary growth. The two policies working together would achieve a declining rate of inflation and a rising rate of real output growth and employment. This environment is ideal for the incumbent to run for reelection.

There is some evidence that such a political monetary cycle may have been operative in policy formation in earlier elections. However, as the market begins to observe these tendencies on the part of the central bank, it will react and tend to offset them. More precisely, in time, this political monetary cycle in policy will not really work very well as the market begins to recognize and understand the mechanism that is based on the lag between money growth and output and between money growth and inflation. This observation brings us to the "Heisenberg uncertainty principle" as it applies to monetary policy (see Fand 1986; Meiselman 1986a, pp. 701–2).

As the public begins to understand the lag mechanism in which the central bank may favor the incumbent, the Fed loses the ability to accomplish these political objectives. In order for the Fed to influence and move markets, it must surprise markets. Only monetary surprises have powerful effects on the economy. Monetary actions that are anticipated by the public do not have such powerful effects. But this means that *if the Fed is going to maintain its power, it must be able to surprise the market.* The conclusion is that the Fed cannot afford to follow a monetary rule. For the Fed to follow a monetary rule is to give up its tremendous powers, and it is hardly likely that an institution with the extraordinary powers and influence of the Fed will voluntarily commit suicide. Those who were advocating a monetary rule now have serious doubts as to whether the central bank bureaucracy would ever accept such a rule. The random-walk monetary standard is likely to continue unless we find a constitutional mechanism that would commit the monetary authority to an anchor and an articulated monetary policy.

The Public Choice Revolution and the Rational Expectations Revolution

The *coup de grace* to many approaches to monetary policy that sought to achieve monetary stability by incorporating rules was probably delivered by the public choice revolution. There are many public choice studies that convincingly demonstrate that central

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bank bureaucrats are not likely to follow monetary rules and policies that have negative consequences for either themselves or their organizations. Public choice research raises serious questions as to the feasibility of monetary policies that are based on monetary rules within the existing bureaucratic framework.

The power and significance of the public choice revolution is illustrated further by the FDIC. Here is an organization that at one time was hailed by almost everybody as a tremendous reform that would guarantee the safety and security of our monetary system. Yet, it and FSLIC were set up in a manner that is internally inconsistent and gives rise to moral hazard. And surely when one looks at FSLIC today and sees a $100 billion bailout that presumably will be borne by the taxpayers, one wonders whether socialism will come to the United States via agencies such as FSLIC. The fact that the FDIC could be hailed as a great reform by dedicated free enterprisers when it was initally set up, and today may be seen as a potentially dangerous threat to a market economy, is itself a tribute to the sophistication brought into policy discussions by the public choice studies.

Another example of sea-change in public sophistication following the public choice revolution is evidenced by the recent concern about the social security surplus. Hardly anyone worried about this surplus five to six years ago when the social security compromise was brought into being. Yet today, almost all elements in the political spectrum are concerned about this surplus. Many conservatives worry that the non–social security expenditures will be increased as a result of this temporary surplus in social security. Many liberals are concerned that the social security surplus will make the deficit look smaller and hence weaken the case for a tax increase which they view as necessary in order to finance new initiatives and social programs entailing increasing expenditures.

The rational expectations revolution also suggests there is little constructive scope for discretionary activist monetary policy. It argues for a clearly enunciated and articulated policy. It tends to reinforce the policy conclusions of the public choice studies in supporting a monetary constitution.

Adoption of a Monetary Constitution

A move toward monetary stability involves a significant amount of redistribution. For example, at the present time we are experiencing an inflation rate that is between 4.0 and 4.5 percent. Should the Fed seek to move toward a zero inflation rate, or even to maintain the present inflation rate, there will be a substantial redistribution. There

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will be winners and losers. But the Federal Reserve cannot be expected to decide which price expectations are legitimate and should be validated, or who shall win and who shall lose.

How can one rationalize and justify a situation in which the nonelected members of the FOMC should make and enforce decisions with significant redistributive consequences. Thus, in order to have an independent central bank staffed by professional economists and bankers, and one that is truly independent of politics, we must first have prior political agreement on a monetary constitution. Professional central bankers could be held responsible for managing a well-defined gold standard or price rule. And given such a monetary constitution, the independence of a credible central bank may be desirable. In the absence of prior political agreement on a monetary constitution, a nonpolitical central bank is impossible. A fiat money system without a monetary constitution will inevitably be forced to bend with the shifting political pressures.

We do not question that the central bank may be staffed with people of unquestioned courage, integrity, and competence; but they have no legitimate mandate without a monetary constitution to resist the shifting of short-term political pressures. One may seek to blame the Fed for the erratic consequences of monetary policy over the last 25 years, or the last 60 years. But the responsibility for monetary stability lies with the Congress; and unless we can agree on a monetary constitution, we will continue to have politicized central banking operating in a random-walk monetary standard.

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Inflation Prevention by a Monetary Rule

Bennett T. McCallum

Price-Level Predictability

As it happens, I share several of David Fand's sentiments, but I am, nevertheless, uneasy with some of his analysis. To begin with, the term "random walk" is a very poor one to use, if one's purpose is to distinguish the post–World War II monetary regime from regimes of previous historical eras. The term is especially inappropriate to use in distinguishing recent price-level experience from that of the classic gold standard era that preceded World War I, because the time series properties of the log of the price level—whether represented by the CPI or the WPI or the GNP deflator—is much closer to a random walk in the technical sense for 1891–1913 than it is for 1950–85.[1]

The foregoing might strike some readers as quibbling over the use of words, so let us switch to the substantive content of this aspect of Fand's discussion, which concerns price-level predictability. In that regard, it has recently been suggested by Meltzer and Robinson (1989) that "long run" uncertainty about the price level was *greater* in the gold standard era than it has been in the post–World War II period. Rather than relying on the Meltzer-Robinson analysis, which uses an unorthodox statistical technique known as multistate Kalman filter analysis, let us consider the issue in the context of simple ARIMA models. For the gold standard period 1891–1913, ARIMA

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[1]A comparison can be made, for example, in terms of the Box-Pierce Q statistic (based on 10 autocorrelations) that indicates departures from white noise of the demeaned inflation rate. Using annual observations on the GNP deflator, the value is only 7.8 for 1891–1913 as compared with 81.9 for 1950–85.

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modeling of p_t—the log of the GNP deflator—leads to the following representation for annual observations:[2]

$$\begin{aligned} \Delta p_t &= \underset{(0.0051)}{0.0130} + \epsilon_t + \underset{(0.214)}{0.622}\ \epsilon_{t-2} \\ \hat{\sigma} &= 0.0245 \qquad DW = 2.00 \end{aligned}$$

By comparison, an appropriate representation for 1948–85 is

$$\begin{aligned} \Delta p_t &= \underset{(0.0045)}{0.0098} + \underset{(0.091)}{0.793}\ \Delta p_{t-1} + \epsilon_t \\ \hat{\sigma} &= 0.0140 \qquad DW = 1.74 \end{aligned}$$

From these results it will be noted that the estimated variance σ^2 of the disturbance process is smaller for the postwar period, implying that price-level forecasts one year ahead will on average be more accurate than under the gold standard. At longer horizons the forecast variance also depends on the moving average and (especially) the autoregressive parameters, and in the present case it turns out that forecast accuracy is greater for the gold standard period for horizons of four years or more. But this conclusion regarding price-level predictability is not nearly as one-sided as Fand's discussion implies.

Now, what has indeed been considerably worse about postwar price-level behavior is that the *average* inflation rate has been clearly positive. There is, in other words, a significant positive trend (possibly stochastic) in the postwar observations on the price level. For the whole postwar period the average inflation rate has been about 4.5 percent per annum. At this rate the effects on the price level cumulate rather rapidly, as is exemplified by the fact that CPI for the United States is now about six times its 1946 level or (as Fand says) about eight times its 1940 level. This type of arithmetic truism is apparently unfamiliar, however, to some individuals. It is something that economic journalists—and perhaps central bankers—should be tested on every week or so.

The Costs of Inflation

While a six-fold increase in the price level since 1946 may seem rather shocking, it is relevant to ask whether there is any firm analytical basis for viewing a 4.5 percent inflation rate as disastrous or even terribly costly to an economy. In response I would, on the one hand, tend to agree with Fand that the usual "shoe-leather cost" calculation probably misses some important misallocations that arise as a conse-

[2]Here ϵ_t is a white-noise disturbance, $\hat{\sigma}$ is the estimated standard deviation of ϵ_t, DW is the Durbin-Watson statistic, and the figures in parentheses are parameter-estimator standard errors.

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quence of inflation in actual economies, since they do not feature perfect indexation of tax schedules. But, on the other hand, if one looks back at the postwar era, it is extremely difficult to argue that the 4.5 percent average inflation rate in the United States has been disastrous. All in all, the fiat money era has not been a bad one by historical standards,[3] in terms of tangible economic progress for ordinary individuals and households. Nevertheless, there are non-negligible costs imposed by an ongoing inflation rate of 4.5 percent—even if it is a steady rate—and *no benefits whatsoever* generated in return.[4] A significantly positive average inflation rate is quite unnecessary and could be avoided without undesirable side effects.

A Nondiscretionary Monetary Rule

The last statement is based on some studies of mine concerning the performance of a specific, quantitative policy rule that dictates the behavior of the monetary base.[5] If the Fed adopted this rule, it would create base money each quarter at a rate equal to 3 percent per annum *minus* the average rate of base velocity growth over the past four years *plus* an amount given by a feedback term that is positive when nominal GNP is below a predetermined 3 percent growth path (and negative when above that path).[6] This is a weakly activist, but entirely nondiscretionary, rule for management of the monetary base, which is a potential instrumental variable that could be accurately controlled by the Fed. The proposal is related to other schemes for "nominal GNP targeting" but differs from most in that it is operationally specified and entirely nondiscretionary.

The studies conducted thus far indicate that this rule would have been highly effective over the 1954–85 period in keeping nominal

[3]These statements implicitly identify the fiat money era with the postwar period, which is perhaps debatable since the main official actions were taken in 1933 (nationalization of gold holdings) and 1971 (revocation of the U.S. commitment to sell gold to central banks at $35 per ounce). But the gold standard could have been maintained despite gold nationalization if the United States had been willing to manage its monetary affairs so as to maintain the $35 price of gold. That willingness had clearly disappeared long before 1971, however, and was, in my judgment, gone by the time of the enactment of the Employment Act of 1946. For more discussion of this point, see McCallum (1989, pp. 330–33).

[4]This statement presumes that superneutrality prevails or that effects of steady inflation on the steady state value of capital per person are positive.

[5]These studies include McCallum (1987, 1988, 1990).

[6]In algebraic terms the rule is expressed as follows, where b_t = logarithm of base money in period t, x_t = log of nominal GNP, and x_t^* = target path for nominal GNP:

$$\Delta b_t = 0.00739 - (1/16)\,(x_{t-1} - b_{t-1} - x_{t-17} + b_{t-17}) + \lambda\,(x^*_{t-1} - x_{t-1}).$$

The feedback parameter λ should be in the range of 0.1 to 0.25.

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GNP close to a steady 3 percent growth target, despite all the stochastic shocks that have buffeted the economy in general and the financial sector in particular. The studies do so by means of counterfactual historical simulations in which the policy rule is combined with a small quantitative model of nominal GNP determination, with estimates of the various nonpolicy shocks fed into the system each period. Since nominal GNP is kept close to the smooth 3 percent target path, these results imply that average inflation would have been close to zero since the average rate of *real* GNP growth would have remained about 3 percent per annum if this policy had been followed.[7]

The objection that some analysts would raise at this point is that the results of a policy simulation study make sense only if the quantitative model is of the structural type and well specified (Lucas 1976). "How do you know," a critic would ask, "that you have a correctly specified structural model?" In fact, I am confident that I do *not* know the correct specification, but I suspect that no one else does either. Consequently, in light of this unfortunate state of affairs, my research strategy is not to try to specify "the" correct model, but rather to conduct simulation experiments in *a wide variety of different models*. What these experiments have shown is that the simple rule described above is highly robust—that is, it gives good results in all of the various models studied, some of which reflect very different competing theories of the nature and mechanism of business cycle generation.[8]

Another question that arises naturally is why this scheme uses a target path for nominal GNP, rather than some other variable. In fact, while nominal GNP has been used in the simulations, I would be perfectly happy to restate the rule in terms of some alternative variable (e.g., final sales or personal income) so long as it is a measure of nominal aggregate spending. But why not aim at a constant price level directly, rather than indirectly by means of a smooth noninflationary target path for nominal spending? One reason is a guess, impossible to firmly substantiate given current knowledge, that a smooth path for nominal GNP would have preferable implications for the cyclical behavior of real GNP and employment magnitudes.

[7]This conclusion follows from the natural-rate hypothesis (Lucas 1972), which is one of the few important substantive propositions that commands wide support from macroeconomists of all persuasions.

[8]In McCallum (1988), simulations are conducted with eight different VAR specifications and three different models with "structural" ambitions, these models representing theories of the real business cycle, monetary misperceptions, and Keynesian/Phillips-curve varieties.

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But in addition it has been found that a price-level target is somewhat less robust in performance—the target works well in some models but poorly in others (see McCallum 1990). Indeed, in a model designed to reflect the existence of sluggish adjustment of nominal wages and prices, the price-level target leads to explosive oscillations even with a λ-coefficient value of 0.25.

Considerations for Modifying the Fiat Money Regime

From the perspective of alternative monetary regimes, one important question is why one would support a scheme that retains the Fed and other current U.S. institutions, rather than a radical new plan such as that of Greenfield and Yeager (1983) or the "basic constitutional reform" promoted by Fand. One reason is that evolutionary modification seems safer than revolutionary overhauls. The simulation studies mentioned in footnote 8 leave many questions unanswered, but nevertheless give some indications of how the economy would perform with the base-growth rule in effect. For the Greenfield-Yeager scheme, by contrast, there is no comparable study. I would not know how to formulate a relevant quantitative model for the Greenfield-Yeager scheme or to estimate the associated shock variances. But these considerations are of critical importance. A second reason is that it seems more likely that the Fed would decide to behave in a manner approximating that defined by my base rule than that the U.S. political system would generate entirely new institutions with desirable properties. I would not expect the Fed to announce publicly that it had adopted a mechanistic rule, since that would sharply reduce its prestige and the broadly defined wealth of Fed officials and staff members, but it could quietly begin to behave in the indicated manner. As a matter of fact, it has been behaving so as to generate a very smooth path for nominal GNP over the past five years, but at a rate that is closer to 7.5 percent than 3 percent.

Conclusion

In any event, while I am myself attracted to a more modest strategy for monetary reform, I consider it extremely healthy that other workers are developing and discussing schemes that would entail more fundamental reconstruction of the monetary system. Even if actual adoption is unlikely, proposals such as that of Greenfield-Yeager (1983) and those discussed by White (1989) are valuable. They stimulate us—indeed, force us—to think about some critical issues in

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monetary theory that tend to be neglected in more mundane discussions.

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A Tribute to F. A. Hayek

Gerald P. O'Driscoll, Jr.

What makes us assign any economist to the first rank? To be more specific, why have some famous economists been awarded a Nobel Prize and others, perhaps equally famous, been passed over? The answer cannot be that Nobel Prize winners have provided correct answers to difficult economic questions, while non-prize winners were wrong. This naive view is easily refuted. Nobel Prizes are frequently awarded to economists with sharply conflicting, even diametrically opposed positions. This can be seen vividly by recalling the two corecipients of the Alfred Nobel Memorial Prize in Economics in 1974: Friedrich Hayek and Gunnar Myrdal. So we need a different criterion.

If anything unites all Nobel Prize–winning economists, it is that they advanced economics in a fundamental way. Fundamental advances seldom come through providing new answers to old questions. *Fundamental advances occur when someone poses new questions.* What constitutes a lasting contribution in economics is asking a new question, setting a new direction of research. If you accept this criterion of excellence in economics, then Hayek more than deserved his Nobel Prize.

Asking New Questions

Hayek asked how economies produce and disseminate the information needed to coordinate economic activity. He has posed the question in many different contexts, and in every instance provided us with new insights. He gained early fame for a series of lectures in which he asked the question about intertemporal monetary equilib-

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rium (Hayek 1935a). Hayek then authored a series of seminal articles on the informational role of the price system (Hayek 1948). In later years, Hayek widened his inquiry to political, legal, and social phenomena generally. Among other things, he demonstrated how a legal system, viewed as an evolved structure of general rules, serves to coordinate individual decisionmaking and produce an overall order. The order, being no part of anyone's intention, Hayek accordingly termed "spontaneous" (Hayek 1973).

It would be impossible to consider Hayek's contributions in any depth in a tribute this short. What I will do is use the topic "Alternatives to Government Fiat Money" as a reference point for elaborating on a few Hayekian insights. Hayek came to this topic late in his career, indeed, after having been awarded the Nobel Prize. *Choice in Currency* appeared in February 1976. A lengthier essay, *Denationalisation of Money*, appeared in October of that year. (Keep in mind that Hayek was born in 1899.) These works represent a significant break with his previous approach to monetary questions. His classic works in monetary economics, written predominantly in the 1920s and 1930s, took for granted that devising good monetary policy was basically a matter of better understanding the world, and then conveying that understanding to policymakers. However pathbreaking the technical analysis of works like *Prices and Production* and *Monetary Theory and the Trade Cycle*, their author was pursuing what economists term optimal policy. As Hayek and others in the 1930s taught us, that optimum entailed maximizing economic output (somehow measured) *over time*. Hayek's business cycle analysis concluded that attempting to stimulate output in the current period (or the near future) would inevitably result in output losses in future periods.

Hayek's analysis is in some ways a forerunner of the modern theory of rational expectations—a fact explicitly noted by some of that theory's progenitors. The policy thrust of Hayek's original statement, as of modern rational expectations' analysis, is that discretionary monetary policy can do a great deal of harm, but very little good. The basic reasoning underlying the conclusion of both the older and the newer monetary theory is that there is comparatively little scope for government's improving on the market's allocation of resources (O'Driscoll 1987).

I still find Hayek's formulation of business cycle theory the most satisfactory combination of real and monetary factors. As Fritz Machlup succinctly summarized the theory, "*monetary* factors *cause* the cycle but *real* phenomena *constitute* it" (Machlup 1974, p. 504).

Hayek, moreover, distinguished money's causal role from the issue of its exogeneity. He assumed that the money supply is endogenous,

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and that money plays a causal role in economic fluctuations. For Hayek, the elasticity of the money supply in modern economies broke the tight connection between commodity excess demands assumed in classical monetary theory.

Hayek had company in the 1930s in analyzing problems of intertemporal equilibrium and expectations formation. Myrdal was among a prominent group of Swedish economists working in the area. And, of course, there were a substantial number of other Austrian economists writing on monetary topics: Mises, Machlup, and Haberler, to name a few. Some "Austrians," for example Lionel Robbins, were English by nationality. The Keynesian tide swept aside all the work, however. Not until the 1960s and 1970s did the efforts of economists like Milton Friedman and Robert Lucas once again draw the profession's attention to the expectational and policy issues raised by Hayek and others in the 1930s.

Economists to this day are still trying to understand Keynes' central message. As applied to policy, however, Keynesian analysis typically specifies some informational failure in the market economy, which leads to macroeconomic problems. In some sense, the private economy underperforms. There is resource unemployment, including unemployment of labor. In Keynes' earlier work, the *Treatise of Money*, monetary disequilibrium was attributed to uncertainty about the future course of interest rates. In his analysis, the uncertainty resulted in economic agents speculating against declines in interest rates, leading to interest-rate rigidity. Keynes' *General Theory* has typically been interpreted as postulating wage rigidity. In either case, discretionary government policy can overcome the rigidity of market prices (interest rates or wages) by using superior information.

Hayek spent a great deal of his professional career criticizing the analytical errors in Keynes' economic theories. Much of the debate developed around arcane issues in capital theory, an especially recondite part of economics. I think it can safely be said that Hayek was clearly Keynes' intellectual superior in capital theory, if not in economics as a whole. Unfortunately for Hayek, however, comparatively few English-speaking economists knew any more about capital theory than did Keynes. Besides, the temper of the times was against Hayek's laissez-faire analysis of the Great Depression.

Hayek basically gave up working on technical economics after World War II, focusing instead on political philosophy and social analysis. He felt that economists were increasingly asking the wrong questions. It is not that his answers to the economic questions being posed in the literature were incorrect (though that was sometimes

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true); it was that, for Hayek, the questions posed were uninteresting or irrelevant.

The Socialist Calculation Debate

The last point can be illustrated by referring to the socialist calculation debate (Hayek 1935b). In this debate, English-speaking economists took up for the first time whether an economic system without prices or markets could allocate resources "rationally." That is, would such a system be able to systematically allocate inputs to produce the appropriate output? Hayek and his fellow Austrians answered "no," while many prominent economists of the time said "yes." To this day, most textbooks say that Hayek and Mises overstated the case against socialism.

Actually, I think Hayek and Mises have been completely vindicated by the events of recent years in Eastern bloc countries, as well as in China. The economies of these countries were generally in a shambles before economic reforms. The limited economic reforms taken thus far—all of which run counter to the professed ideology of the respective governments—have been taken in desperation. We now know that these economies suffer all the worst economic problems seen in Western countries (such as poverty and homeless people), *plus* they simply cannot produce the goods. By any reasonable criteria, old-style socialism is a failure. And it has failed for the very reason Hayek and Mises said it would—without private property and market prices, socialist economies cannot match resources to output in any systematic way.

The basic reason most economists did not understand the theoretical argument against socialism is that they were asking the wrong question. Hayek's opponents kept asking whether an economic czar could efficiently allocate resources if he had all the necessary information. The answer to that question is, of course, "yes." Hence, in the mythology of economic history, the defenders of socialism are credited with having "refuted" Mises and Hayek. The defenders did no such thing; they simply posed and answered a different and irrelevant question.

Mises' original charge, which Hayek took up and amplified, was to discover how a centralized economy would acquire information about preferences and opportunity costs. Our economy does this through prices and markets. By definition, a centralized economy has neither. Mises and Hayek concluded that no social mechanism would exist that could substitute for the information-producing and information-disseminating functions of the price system. Once again,

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they hit on the right answer because they discovered the appropriate question to ask.

Choosing a Monetary System

My broader consideration of Hayek's economic contributions has brought us back to the topic of choosing a monetary system. Recall that Hayek's technical work in monetary economics was conventional in its acceptance of optimality as the policy goal. The vast majority of work on monetary policy still attempts to answer the question: What is the optimal policy? By 1976, however, Hayek and a few other economists were beginning to ask a different question. How can we get monetary authorities to do what is right?

Monetary economists have traditionally assumed that, once convinced of the correct policy, monetary authorities will implement it. If the correct policy to follow is uncertain, the uncertainty reflects no more than scientific disagreement. All of what is known as public choice theory disputes this naive view. But monetary economics was a holdout against the insights of Jim Buchanan and his colleagues.

In *Choice in Currency*, Hayek (1976a, p. 16) asks a traditional public choice question: How can we find a way to protect money from politics? By "politics," Hayek means the interest-group politics of modern democracies. As he put it:

> I never had much illusion in this respect, but I must confess that in the course of a long life my opinion of governments has steadily worsened: the more intelligently they try to act (as distinguished from simply following an established rule), the more harm they seem to do—because once they are known to aim at particular goals (rather than merely maintaining a self-correcting spontaneous order) the less they can avoid serving sectional interests [Hayek 1976a, p. 14].

I offer two observations about the quotation. First, Hayek is clearly adopting a public choice perspective. The inquiry is not about what the right course of action may be, but about how to get decisionmakers to follow the right course. Second, Hayek clearly is focusing on incentives and constraints. Policymakers do not do the wrong thing because they are either evil or ignorant, but because of the constraint of interest-group politics. Once a policy goal is explicitly stated, interest groups will coalesce to distribute the gains. Whether Hayek's position reflects pessimism or merely realism depends on one's own view. But, I submit, he is asking a far more interesting question than the one typically posed.

There is one feature of Hayek's own recommended policy on which I want to focus. Hayek recommended altering the constitu-

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tional rule for money. Money would no longer be produced under monopoly conditions by a government authority, but under competitive conditions. Hayek stated as follows:

> At this moment it seems that the best thing we could wish governments to do is for, say, all the members of the European Economic Community, or better still, all the governments of the Atlantic Community, to bind themselves mutually not to place any restrictions on the free use within their territories of one another's—or any other—currencies, including their purchase and sale at any price the parties decide upon, or on their use as accounting units in which to keep books. This, and not a utopian European Monetary Unit, seems to me now both the practicable and the desirable arrangement to aim at. To make the scheme effective it would be important . . . also to provide that banks in one country be free to establish branches in any of the others [Hayek 1976a, p. 17].

Hayek's purpose in making his suggestion was to introduce competition into the production of money. In other areas, of course, competition disciplines producers to supply the best products at the least cost. It has long been thought that the opposite is true for the case of money: "Bad money drives out good," in the words of Gresham's Law. But Gresham's Law applies to only one specific case: that of two monies, one of which is overvalued by fiat relative to the other. The classic example was gold and silver coin whose exchange ratio was fixed at a value inconsistent with market valuations. In this case, debtors and purchasers generally will always prefer paying in the overvalued or depreciated coinage. The valuable coinage will be hoarded.

In the goods market, a kind of Gresham's Law would operate if producers could substitute less-valued commodities for those more highly valued. For example, if an auto dealer could sell BMWs but deliver Yugos, we would have a Gresham's Law for goods. Pretty soon, only Yugos would be available. Actually, price controls produce a situation not unlike this one. The quality of price-controlled goods declines over time. On free markets, however, goods representing value for money received are preferred. Similarly, with competition in currency, good money would drive out bad money.

The public choice basis of Hayek's proposal is clearly drawn out in *Denationalization of Money.*

> I should never have wanted to deny that a very wise and politically independent monetary authority might do better than it is compelled to do in order to preserve a fixed parity with gold or another currency. But I can see no hope of monetary authorities in the real world prevailing for any length of time in their good intentions [Hayek 1976b, p. 82].

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Hayek wanted to leave the choice of the monetary rule to market forces. He had his own idea what the rule would turn out to be, but he was not attempting to invent a new monetary order out of whole cloth (Hayek 1976a, p. 15). Much of the recent literature on competitive money amounts to doing just this. Once again, Hayek asked a different question: Where should the rule come from? His response was "the market." I find this the most intriguing and attractive aspect of his work. As an economist, I trust market forces, *not* other economists. If we could change the monetary constitution to permit a monetary rule to evolve in the market, the change would have a great deal to recommend it.

Recent events may once again be catching up with Hayek's theoretical analysis. Hayek indicated that freedom for banks to branch within the common market would be a necessary institutional condition for implementing choice in currency. This is because most money is held in the form of deposits, not in currency itself. In fact, the common market is in the process of eliminating branching restrictions. If a bank has a legal charter within one common market country, it will be permitted to branch in all others. Only time will tell if the change will hasten movement toward some type of competition in the provision of money (here viewed in its medium of exchange function). There are obviously a lot of potential political and institutional obstacles to developing competitive currencies. For a good many reasons, however, the economic experiment in Western Europe will be interesting to watch over the next few years.

Conclusion

I would like to close my discussion by considering the direction economic research might take if Hayek's question regarding the choice of a monetary rule is analyzed by more economists. To me, his question suggests a research program grounded more in economic history and less in modeling, and more in comparative institutional studies than in abstract theorizing. Before suggesting fundamental changes in monetary systems, we should look to what has worked in the past. There are an indefinitely large number of rules that can be invented. And there probably exists some set of assumptions that will make each "efficient" within a model. We know, however, that there have been relatively few monetary systems that worked well in history. It seems to me the lessons to be learned will come from more careful examination of monetary history and institutions. Indeed, I think the institutional emphasis is very much in the Hayekian spirit. As I have argued elsewhere, the line of inquiry is one

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suggested by Hayek's intellectual mentor and founder of the Austrian school, Carl Menger (O'Driscoll 1986).

The appreciation of Hayek I have offered necessarily covered only a small portion of his contributions to economics (see O'Driscoll 1977). I was able to mention only his important work in political, legal, and social theories. Most notable among these are the three volumes of *Law, Legislation, and Liberty*. But I hope that I have given a flavor of how Hayek's work fits into the topic of alternative monetary regimes. In passing, I also hope that I have indicated that—brilliant theorist that he is—Hayek has also contributed to debate over public policy. We are living in a time of major political and institutional changes that are taking place worldwide. Only now is the importance and relevance of some of Hayek's ideas becoming evident. In a real sense, Hayek has been underappreciated because he was so far ahead of his time. One might say that events are finally catching up with theory.

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Private Money: An Idea Whose Time Has Come

Richard W. Rahn

Introduction

For a number of years I have argued that the development of global futures markets and the information revolution have made private money a practical as well as theoretical possibility (see Rahn 1986). I had expected private money to serve as a superior surrogate to government monopoly monies in international trade among traders from the developed nations and as an inflation hedge for more affluent individuals around the world. It seemed to me that when even the strongest government currencies lose their purchasing power at the rate of 3 or more percent per year and that when exchange rates between major currencies can vary by as much as 30 percent or more within six months, there had to be a better private alternative.

Since the breakdown of the Bretton Woods system in 1971, individuals making long-term international contracts and investments have had to go to considerable expense to hedge against currency losses, in addition to ordinary business risks. The increased instability of government monies is directly related to the fact that they are now all fiat monies—currencies that are issued without any tangible backing such as gold, but instead derive their value from the good faith and credit of the issuing governments. For instance, by the end of 1988 the U.S. dollar was worth only 30 percent of its 1971 value, when the United States severed its last tie of the dollar to gold.

To correct the erosion of monetary value, many critics of the current regime have proposed anchoring the monetary system to something real. Proposals include a return to the gold standard, some type of commodity basket standard, or the use of price and quantity rules to

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determine appropriate money growth. Any of these proposals could provide greater price stability than the existing monetary system, provided they were properly enforced.

But the fatal flaw in all reform proposals that depend for their implementation on governments is that short-term political considerations often force monetary authorities to alter the rules. The U.S. government abandoned the gold standard in 1917, in 1933, and again in 1971. In addition, British and French monetary authorities and others also have a long history of abandoning the gold standard when it became potentially inconvenient.

Despite the obvious shortcomings of government fiat currencies, I clearly underestimated the ability of market participants under conditions of substantial financial market deregulation to create vehicles—such as money market funds, variable rate mortgages, indexed bonds, and an increased variety of financial futures markets contracts—that largely protect individuals and institutions against both moderate rates of inflation and currency fluctuations. Despite the fact that central bankers, no matter how competent and honorable, often find it difficult to resist short-term political pressures to debase the value of the currencies they control, it also appears to be true, at least in the developed countries, that very rapid debasement is also politically unacceptable.

This combination of semi-responsible monetary policy and financial deregulation in the major developed countries has reduced the competitive advantage of private money to such an extent that it is unlikely to emerge under present circumstances. In sum, private money is an idea whose time has come and passed, but only in the major developed countries.

In my judgment, we are most likely to see the use of private money in the most unlikely of places—the statist countries of Eastern Europe, beginning in Hungary, Yugoslavia, and Poland. The reason, quite simply, is that the present government monopoly monies are failing to provide the basic functions of money. National currencies in Eastern Europe are not freely convertible into other currencies, they suffer from high rates of inflation, and they cannot be used to purchase many desired goods. The administered price structure in these countries means there are shortages of many goods at the official prices using government money, but these goods are frequently available if the purchaser has a convertible currency such as the U.S. dollar or West German mark.

To correct the problems of the existing Eastern European currencies, the governments would have to institute radical price reform and alter monetary relationships among Eastern European govern-

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ments and with the Soviet Union. The political cost of these necessary changes is likely to be so high that they will not occur. Thus, the only way out of this dilemma for those governments seeking to increase their citizens' standard of living is to move toward a real market system and expanded trade and investment with the West by allowing the development of a parallel system of competing private currencies. Obviously, Eastern European governments could decide to use existing convertible currencies such as the U.S. dollar. To some extent this is already happening. In Poland, for example, prices are frequently quoted in dollars and many citizens hold dollar balances.

Using another country's currency, however, does have a number of obvious disadvantages. There is the loss of national prestige and the risk of being subject to adverse political actions by the issuing country. This risk is particularly high for a nondemocratic country using the U.S. dollar. Recall, for instance, the damage the United States did to Panama's economy with currency restrictions, which was possible because Panama was using the U.S. dollar as its domestic currency.

This paper describes how private money can be established in a practical way, rather than presenting the theoretical case for it. Implicitly, however, the paper accepts Menger's and Mises's insights into the origin of money. In particular, as Murray Rotland (1987, p. 419) notes, "The demand for money can be pushed back logically to the 'day' before the money-commodity became money, when it had purchasing power only as a commodity valuable in barter. Hence, every money must originate on the market as a valuable, non-monetary commodity and cannot begin as being imposed by the state, or in ad hoc social contract." The argument made by Mises and others that fractional reserve banking tends to be inherently inflationary even though individual banks are necessarily restricted in expanding credit is also accepted in this paper. It is, therefore, supposed that the abolition of central banking would likely result in the reduction of inflation.

Before describing the mechanics of establishing a private money suitable for use by the Eastern Europeans and others, I shall briefly review the general case for private money and some of the relevant history.

Why Private Money?

Private issuers of money have stronger incentives than governments to maintain the real purchasing power of a currency because

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the only way to make a profit by issuing money would be to provide a currency that people consider superior to government money. People making long-term contracts or investments would be eager to rely on a private currency only if they thought it would maintain its value better than the U.S. dollar or Japanese yen or other currencies.

Proponents of competitive currencies and free banking do not suggest that decisionmakers in the private sector are more honest and responsible than those in the public sector, only that competition ultimately would weed out the crooked and incompetent. Superior money will drive out inferior money. This is the reverse of Gresham's law, "bad money drives out good," which refers to situations in which debtors have an after-the-fact choice of payment. Buyers, sellers, and lenders all have an incentive to make long-term prospective contracts in a currency that will not lose its value.

There is considerable evidence in support of competitive currencies and free banking. Experience demonstrates that the value of money is less stable and cyclical downturns are more severe under government monopoly regimes than under free-banking or competitive-currency regimes.

U.S. monetary history is a good example. From 1839 to 1913, between the demise of the Second Bank of the United States and the establishment of the Federal Reserve System, most money in circulation consisted of privately issued bank notes. The quality of these bank notes varied; those issued by many large Eastern banks were often as "good as gold," and in fact could be redeemed for gold. Many Western bank notes, however, sold at deep discounts, which helped give entrepreneurs the money they needed to finance their businesses. As would be expected, some issuers of money cheated their customers, but these acts seldom had a notable effect on the economy. Every 20 years or so from 1840 to 1913, the economy was hit by sharp downturns, known as "panics." But the period of competitive bank notes coincided with the period of the most spectacular and sustained economic growth in American history. From the end of the Civil War to the establishment of the Federal Reserve, real personal per capita income rose on average by about 10 percent per year faster than in any subsequent period.

The economy also has been much less stable since the establishment of the Federal Reserve, which restored government's monopoly over currency. The wholesale price index in 1913 was 87 percent of what it had been 76 years earlier, and over this period it never varied by more than 100 percent, not even during the Civil War. By contrast, in the 76 years since the founding of the Federal Reserve, the wholesale price index has risen to 854 percent of its 1913 level. Economic

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downturns have been far more severe in terms of lost output and unemployment since the formation of the Fed than in any of the pre-Fed panics. Only 1,748 banks failed in the 20 years before the founding of the Fed, compared with 15,502 in the 20 years afterward.

If competitive currencies is such a good idea, why has it not been tried? Experiments to establish private currencies have so far been hampered by a maze of government restrictions. Since World War I, the currencies of all major countries have been monopolized by their national governments. Central banks such as the Bank of England, the Bank of Japan, and the Federal Reserve Board of the United States have had sole authority to produce both paper money and metallic coins used as a medium of exchange and legal tender for the discharge of debts and payment of taxes. In the United States, this monopoly has continued in practice even though Congress established the "gold clause" in 1977. This clause makes contracts based on gold values of the dollar legally enforceable. Unfortunately, money surrogates such as gold coins, money market funds, or indexed bonds are not truly competitive with government money because any change in their values (even if induced by inflation) is subject to the capital gains tax.

The absence of a gold standard for major currencies adds a further difficulty for private gold-backed monies. When most of the industrial world was on a gold standard, the price of this metal was a fairly reliable proxy for the real value of goods and services produced and consumed around the world. In recent years, however, gold prices have fluctuated wildly and been subjected to speculative and political manipulation, making gold an unstable base for a private currency.

The Time for Private Money Is Now

The time is ripe for the creation of a private money. There is a clear market need in the Eastern European countries for a currency that serves the basic functions of money, such as being a store of value, and that is freely convertible into other currencies. The political climate also appears to be changing sufficiently in Eastern Europe to allow the introduction of a private currency. The development of a free-market economy in parallel with the existing socialist economies is likely to be the least destabilizing way to achieve satisfactory rates of economic growth to provide for the basic needs of the citizens in the Eastern European countries without directly attacking the existing political order. And a convertible currency is a necessary

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condition to allow a free-market economy to grow and operate in parallel successfully with the existing socialist economies.

Several technical and financial innovations have occurred that make the creation of a private currency practical. Specifically, a private money can be established that is backed by a basket of real goods, that is, tradeable commodities and high-grade securities issued by companies and governments from around the world, where the rate of return on the securities will exceed the rate of inflation on the currencies they are denominated in.

There are four developments that make the creation of a private currency possible. The first is the proliferation of organized commodity exchanges where both the cash and futures prices of many different commodities are determined by supply and demand in open auction. Organized commodity futures exchanges began in the United States and England in the late 19th century and dealt exclusively with agricultural commodities and metals. Today more than three dozen commodities, ranging from heating oil to gold to wheat, are traded daily on more than two dozen commodity exchanges from Singapore to Winnipeg to Sao Paulo to Milan. A futures contract is essentially a contract in which the buyer agrees to accept delivery at a specified price from the seller at a designated time in the future. A private issuer of a commodity-basket-based currency, therefore, no longer has to store the commodities, but merely has to hold a future contract.

The second development is the emergence of truly international markets, in which each commodity has a "one-world price." Instant worldwide communication by satellite enables market participants to know the prices in any convertible currency of all traded commodities at the same time, thereby preventing major price differentiation in various locales, except those based on transportation costs. Similarly, since the breakdown of the Bretton Woods system, freely fluctuating exchange rates have eliminated the price distortions that frequently occurred in basic commodities whenever speculators anticipated a reevaluation of a currency. The emergence of a "one-world price" helps the issuer of a commodity-based currency by eliminating arbitrage opportunities.

The third is the development of money market funds throughout the world. Money market funds enable investors largely to insure themselves against increases in inflation or changing rates of inflation in the currencies in which the money market funds are denominated. The existence of these money market funds enables the producer of a competitive currency in part to back his currency by the acquisition of money market assets in a variety of funds based in different nations.

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The final development is the creation of tax havens where bank secrecy laws prevail. People will be inhibited from using a commodity-backed or financial-asset-backed money where changes in the price of a commodity or financial assets relative to a given currency are subject to capital gains or income taxes. Fortunately, a number of small countries such as Switzerland, the Bahamas, the Cayman Islands, Hong Kong, and Liechtenstein have found that they can strengthen their economies by providing greater freedom from regulation and heavy taxes than their bigger competitors. None of these countries impose an income tax or capital gains tax on the purchase and sale of commodities, and all have bank secrecy laws to protect the privacy of legitimate users of financial instruments (such as money market funds).

It is now possible, therefore, to envision a private organization issuing a currency with stable purchasing power. The issuing body would be a private bank based in a country without capital gains taxes and with bank secrecy laws. The bank would back the currency, in part, with a basket of commodities whose historic price increases have equaled or exceeded the rate of inflation. To ensure that no one commodity would have a disruptive influence, as a result of an extreme price change, the basket would contain perhaps a dozen different commodities. In addition to the commodity basket, the currency would also be backed with high-grade financial paper, that is, stocks and bonds and money market funds based in a number of politically and economically stable countries.

Establishing a Private-Money Bank

The goal, quite simply, is to provide an alternative private money that is freely convertible into established convertible currencies and that retains its purchasing power. A money that meets these simple conditions should be able to gain ready acceptance among individuals and businesses in countries that suffer from an inconvertible currency or from monetary instability.

Fortunately in recent years a number of financial innovators have developed various stock and bond mutual funds, money market funds, and commodity funds that have consistently provided investors with rates of return well above the rate of inflation. For instance, Steve Hanke, chief economist at Friedberg Commodity Management, Inc. (FCMI), in Toronto, has developed an inflation hedge account that FCMI has successfully traded since February 1987. The stated objection of this account is to create "an unleveraged account which will invest in a diversified basket of internationally traded

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commodities whose price appreciation will be higher than that of the cost of living and, thus, provide protection against inflation."

The new bank initially would operate much like a mutual fund except it would be a fund of funds. The bank managers would accept any convertible currency, which in turn would be used to buy shares in commodities, stocks, bonds, and money market mutual funds in a variety of countries. The bank's managers would have the responsibility for determining what share of the assets would go into each different type of fund. They would have to select the specific funds and to make sure that they were widely diversified by location and by currency in which they were denominated. The bank managers would have a very simple operational goal: at a minimum to make certain that the rate of return is higher than the rate of inflation for whatever currency the funds investment is denominated in. Obviously it would be desirable if they could achieve rates of return substantially higher than the rate of inflation as long as the rates of return were commensurate with a very high degree of safety and liquidity. The bank would quite clearly fail if its noteholders were not protected against inflation, and if its depositors did not receive returns in excess of the rate of inflation. Hence, it would be necessary for it not only to have competent money managers but to have a board of directors of impeccable reputation and expertise. Specifically, the board should be drawn from a number of leading economists and financiers from around the world, with perhaps no one nationality having any more than 30–40 percent of board representation, and where it would be unambigously clear that the self-interest of the directors would be in making the bank succeed. A compensation formula for both managers and directors should contain explicit monetary incentives for long-term success and profitability, for example, over a 10-year time horizon. Subsidiary boards would need to be established to represent the primary users and depositors in the bank. Again, the compensation for subsidiary board members ought to be based on long-term profitability and success.

Individuals or business people wishing to use the bank would bring any convertible currency to the bank and exchange it for a bank note, which might be called the "reale." On the opening day of the bank, an exchange ratio for the "reale" would be set for each currency in line with its respective rate in the world market. For instance, somebody bringing in $1,000 and assuming the exchange ratio was set at $10.00 for each "reale" on the opening day would get 100 "reales." The customer could then either hold the "reales" or deposit them in the bank and receive dividends depending on the bank's earnings. If the holder of the 100 "reales" were to hoard them at

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home, one year later that person would receive $1,050 from the bank if the rate of inflation were 5 percent. On the other hand, if the "reales" were deposited in the bank, they would grow to $1,050 *plus* whatever dividend the bank had declared. For instance, if the dividend were 3 percent, the original deposit of $1,000 would become $1,080.

The same process would basically hold true for every other currency in which deposits were accepted. A problem would emerge in that exchange rates between currencies do not move at the same rates as the rate of inflation. So the bank managers would actually have to post the exchange rate between the "reale" and any given currency on the basis of market rates of exchange between the existing convertibile currencies rather than inflation rates. Hence depositors could be subject to foreign exchange losses or gains if they decided to take their funds out of the bank in the same currency as the original deposit. But, in fact, they would be allowed to draw their deposits in any convertible currency. The bank's managers, to protect themselves from people depositing in what they believed would be depreciating currencies and withdrawing in what had become appreciating currencies, would have to hedge their investment portfolio against foreign exchange risk. This would tend to encourage depositors toward having a substantial portion of their investment portfolio in commodity contracts for commodities that have a "one-world price."

Individuals and businesses would have an incentive to use the new bank provided they are convinced that the bank notes they hold will largely protect them against inflation and that the bank's assets are sound and sufficiently liquid. A large demand can be evisioned for such bank notes by people who are able to obtain foreign exchange that is convertible but who are located in countries without a convertible and stable currency. As an example of this type of demand, the government of Singapore prints some bank notes in very high denominations. These notes are not used for day-to-day trade but are held by individuals in safe deposit boxes and elsewhere as a store of value, since there is a high degree of faith in Singapore's monetary authority. Moreover, these notes are viewed as assets that are very easy to hide from the tax collector. In similar fashion, private bank notes, "reales," would be strictly bearer notes and largely impervious to the clutches of the tax collector, provided the bank was established in a tax haven.

There would be a great incentive for state-operated companies in Eastern Europe to make long-term contracts that are quoted in "reales" and are with Western firms or individuals, since this arrange-

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ment would help safeguard against the risks associated with foreign-exchange fluctuations and inflation. It may even be useful to allow state-owned companies to enter into such contracts with each other, given that the existing price mechanism often fails to function. As more and more market activity is allowed in the statist countries of Eastern Europe there would be a great incentive to quote prices in "reales" to avoid the price distortions caused by the existing state pricing mechanisms. Individuals could then chose to buy or sell at what they believed was the true market rate for the existing state currency in terms of the set "reale" price.

"Reales" would be widely circulated and prices would be widely quoted in "reales" only if the political authorities in any country viewed such circulation as a superior alternative to their citizens trying to hold U.S. dollars, Swiss francs, West German marks, or other convertible foreign currencies. The private bank—by having an international board of directors, by being organized essentially as a mutual fund, and by being able to provide reasonable financial incentives to individuals who would be major users of the bank—could quite clearly be seen as a superior alternative to the use of some other government's currency. It is not inconceivable that if the bank succeeded in one country it could succeed in a number of countries and perhaps become the issuer of a major and stable international currency for a number of smaller countries.

The bank's income would come from transaction fees resulting from the sale and purchase of "reales." Interest would be earned on deposits, free reserves, loan fees, and foreign-currency-exchange market fees. The bank's expenses, in addition to its initial capitalization, would include normal operating overhead plus the fees, commissions, and transactions costs for the purchase and rollover of the fund's various investments.

Private money is no longer just an abstract idea; it is an idea whose time has come. It has gained the support of Nobel Prize-winning economists such as F. A. Hayek and Milton Friedman. It is now legally feasible and it provides an enormous opportunity to assist in raising the standard of living of Eastern European countries as well as all countries with a failed monetary system.

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Central Bank Credibility: An Alternative to Private Money

Stephen H. Axilrod

When I saw the title of Richard Rahn's paper, I thought that I would have a chance to use an obvious opening line in my comments: Private money may be an idea whose time has come—but not to me. However, on reading his paper, I find that being a citizen of a major developed country, I have simply been bypassed by the idea—a victim of "semi-responsible" monetary policy and financial deregulation. I also find that if I could transpose myself into an Eastern European, I could have a more partisan interest in denying the practicability of private money as an idea whose time has come.

Unfortunately, I hardly know enough about the economic and financial situation in those countries for such a transposition, so I will make my argument on more general grounds. I do have some sympathy with what I take to be Rahn's underlying theme: More or less complete confidence in the currency is required if an economy is to function effectively. If governments are basically irresponsible toward the economy, the central bank will also be. In that situation, according to Rahn as I understand him, the only way to get around the problem is to fence off the government sphere with a private sphere whose payments mechanism is based on, for example, privatized money—or failing that, is based on hard foreign currencies, as in any event generally happens to some degree when confidence in the home currency and economic system disappears.

Private Money as an Investment Opportunity

Rahn's paper has outlined a scheme that could, he avers, lead to privatized money in those countries whose central banks and

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governments perform less than "semi-responsibly." His particular proposal, which I would characterize as a world money market fund, might well, if developed, represent a good *investment* opportunity. It might offer, as in the example he gives, a real rate of return of about 3 percent if the "currency" issued by the fund is invested in the fund rather than used for circulation or hoarding. As a former bureaucrat, one indicated advantage of the proposed fund does not really appeal to me, namely, the ability to avoid taxes from holding the notes of the fund because they would be in bearer form and the fund's office could be established in a tax haven. That is carrying privatization a bit far in my view. On the other hand, to show that I am quite unbiased on the general subject, I would also strenuously object to governmental efforts to impose a tax on currency holders by abusing its monopoly on money through deliberately creating inflation.

Importance of a Responsible Central Bank

However interesting Rahn's practical proposal might be as an investment opportunity, I doubt that it, or some variant of it, will lead to privatized money in circulation and the abandonment of central banking and fiat currency—even in those countries where the financial system presently is in a state of disrepair and disruption. It is more likely, I should think, that public economic and monetary policy will make an effort to turn more responsible, depending largely on how the political situation evolves, although admittedly the political difficulties are massive.

A responsible central bank and a responsible note-issuing authority are, in my view, integral to the development of a sound, viable financial structure and are most likely to develop when the private sphere of the economy is active and strong. When the government is pervasive, any positive influence for monetary responsibility from a private sphere with strong survival instincts is diluted and very often lost, not merely in Eastern Europe but also in many developing countries where the economies do have a fairly large private sector.

In many such countries, governmental fiscal policy has often been so irresponsible that the private sector has refused to finance the government and has to a great extent walked out of the economy. Large investors have moved funds abroad, and many small businesses or entrepreneurs have at times shifted to a gray or underground market detached from the mainstream economy. With private lenders unavailable and tax receipts eroded, central banks in consequence have been forced to finance the government through inflationary money creation. The result, of course, has been the further

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flight of private funds. Stabilization in such an environment will come when the political will exists to cut the governmental deficit and restore the ability of the central bank to conduct monetary policy with a view to long-term economic stability rather than as a way of bailing out the government and other institutions from a continuously threatening bankruptcy.

A responsible central bank and note-issue authority provide the foundation for an effective private sector. In my view, privatized money cannot provide such a base. Zero or relatively low inflation is only one aspect of that fundament. The other is securing the economic system against failures in the payments mechanism and pervasive liquidity crises. Such security can be uniquely provided by a central bank whose credit and reliability are not subject to the vicissitudes of the market. With a stable central bank at the heart of the payments mechanism, and available as a lender of last resort, there is little chance of a domino effect of failures—an effect that might call into queston the ability of even good checks drawn on basically good banks, but which may not receive incoming payments, to serve the purpose of paying for goods and services.

The whole economic system could grind down should doubts about the basic payments system ever spread. Under that circumstance, of course, barter or some sort of privatized money system might evolve as a necessity to keep the real economy functioning in some fashion. However, I would regard such a system as inherently fragile because it lacks an ultimate and unquestioned guarantor of financial stability whose creditworthiness and ability to function are not themselves dependent on the private system. Of course, once a central bank becomes involved in inflation or doubtful credit advances, its role as guarantor can become attenuated through loss of confidence, which would increase fragility in a system like our own. The good functioning of our economy in the past few years—even when it has been subject to debt problems, bank and thrift institution failures, and so on—is in no small measure owing to confidence in the central bank, including its ability to lend but not to overlend. Excessive lending could have the counterproductive effect of tending to dilute confidence in both the central bank and the financial system as a whole. The stability of the U.S. economy in the last several years is also attributable to deposit insurance, which does have certain widely discussed disadvantages (such as the moral hazard problem) but which has so far forestalled any widespread runs out of deposits (into such places as the mattress or foreign currencies) and has provided time for both the market and regulators to work out orderly solutions to troubled situations.

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Movement toward Private Money?

In any event, so far as I can tell, the development of deposit banking essentially privatizes a good part of money, though I grant it is not full privatization in what I take to be the Rahn sense. That is, in this country, the U.S. dollar is the unit of denomination; there are no such things as Citibank or Chase dollars in circulation. Still, private banks do compete in their deposit issue function on the basis of the public's assessment of their creditworthiness, although deposit insurance admittedly homogenizes institutions to some degree but by no means entirely. With the introduction of foreign currency deposits here, the practical meaning of privatization is being extended a bit, of course.

Some deposits are connected to governmental fiat money in a way through Federal Reserve requirements. Reserve balances at the Fed in a sense might be considered a form of fiat money. Reserve requirements are more useful than not for monetary control. But conceptually a central bank could function without them—so that deposits could be detached from that direct link to the government. But even so, I would still want the central bank to be at the heart of the clearing mechanism, hold clearing balances, and be available as lender of last resort for the reasons noted above.

In my emphasis on the key role of a central bank with unquestioned integrity, perhaps I am no more than restating why Rahn sees no future for privatized money as he conceives it in the United States and other advanced industrial countries. But I think I am saying more. Because a fully privatized system lacks a core institution such as a central bank, whose credit and soundness are impervious to fluctuations of business within the private system, I do not accept the view that a fully privatized system will be adequately stable. It goes without saying, also, that the sustainability of privatized money in the form we now have—featuring a diverse structure of private despositories and other financial institutions—depends on the solid foundation given by a central bank and a government whose credit is absolutely beyond question. I would bend my efforts toward such a system in Eastern Europe and elsewhere.

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What Kinds of Monetary Institutions Would a Free Market Deliver?

Lawrence H. White

At least since Adam Smith's *Wealth of Nations* (1776), economists have periodically debated the consequences of applying the principle of laissez faire to money. Never entirely extinguished, the debate seems to be rekindled at roughly 50-year intervals. In the late 1820s to early 1940s the advocates of "free banking" argued with some success that the monetary system would be improved by freeing entry for banks of issue, and by ending the privileges of the Bank of England and the Second Bank of the United States. In the 1880s and 1890s there was a modest revival of laissez-faire monetary thought in Great Britain, and in the discussions over remedies for the shortcomings of the regulated note-issue of the National Banking System in the United States. In the late 1920s and 1930s a still more modest revival occurred. Today we are in the midst of a large-scale resurgence of interest, dating from the mid-1970s, in competitive institutions for the supplying of money. For the first time since the 1840s a significant number of leading theoretical economists are among the proponents of monetary laissez faire.[1]

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[1]On the 1830s literature, see V. Smith (1936), L. White (1984a), and White and Selgin (1989). On the 1890s, see V. Smith (1936) again, Cowen and Kroszner (1987), and Selgin and White (1990). The important contributions of the 1930s era were Mises ([1928] 1978), Meulen (1934), V. Smith (1936), and Hayek ([1937] 1971). On Meulen, see Dowd (1988d), who also mentions the 1890s British writers. L. White (1984b) and Schuler (1988) survey old and new literature. Brown (1982) contrasts arguments for competitive money with arguments for constitutional monetary rules. Vaubel (1985) and Hellwig (1985) provide an informative clash of positive and negative views on currency competition. Dowd (1988a; 1989) and Selgin (1988) offer valuable restatements and important extensions of arguments for competitive money.

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The writing style and theoretical apparatus of the economics profession has certainly changed since the 1830s, but one central point of the basic monetary policy debate has persisted. Many proponents of competitive money (particularly Hayek 1978) continue to point to the instability created by government-sponsored money issuers. They view the self-regulating character of market competition as a potential means for greater discipline and stability in the supply of money.

In another respect the modern debate has ventured onto new ground. The earlier proponents of free banking contemplated competition in the supply of "inside" money, namely bank notes and deposits, which they assumed would be redeemable for the "outside" money gold. Experience (for example with the assignats, Continentals, paper pounds, and greenbacks) suggested that an irredeemable paper currency was not sustainable. It could lead only to hyperinflation or a restoration of redeemability. The precious metals, especially gold, had been freely adopted by commerce around the world as outside money (Brough [1896] 1969, pp. 10–11). The quantity of gold in any nation was not under the control of government. Monetary theorists consequently had little reason to associate laissez faire with the demonetization of the precious metals, or otherwise with competition among multiple outside monies, except in the form of privately minted coins.[2]

Today the demonetization of the precious metals, at the hands of national central banks, is an accomplished fact. Experience with pure fiat monies since the end of the Bretton Woods system, together with the quantity theory of the purchasing power of money, suggests that a noncommodity outside money can, in fact, be sustained. Accordingly a number of recent laissez-faire monetary theorists, beginning with Klein (1974) and Hayek (1978), have contemplated competition in the supply of distinguishable noncommodity outside monies. Others, particularly Timberlake (1981, 1986), Friedman (1984), and Selgin (1988), have proposed free banking on a frozen base of fiat dollars.

In a separate line of development Greenfield and Yeager (1983, 1986; Yeager 1983), drawing on Black (1970), Fama (1980), and Hall

[2]Cowen and Krozner (1987) survey writers who did envision nonmetallic monetary standards under laissez faire. Hellwig (1985) rightly insists on the importance of distinguishing competition in inside money from competition in outside money. The defining characteristic of inside money, as the term is used here, is its redeemability. The asset for which it is redeemable could conceivably be something not itself a money, though historical examples are lacking.

It is probably unwarranted to infer from the four cases mentioned that *no* sort of irredeemable paper currency is sustainable. All four were cases of government-issued currency with legal tender status. I am indebted to Steve Russell for pointing this out.

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(1982), have proposed a laissez-faire payments system in which a bundle of commodities would define the unit of account, but outside money would not exist.

Robert King (1983, p. 128) has aptly commented that "the central focus of future research in this area [of the economics of private monetary systems] must be the types of monetary *institutions* that the private market will deliver." The present essay seeks to provide an overview of the most important unsettled questions in the positive description of the monetary institutions that the private market will deliver, framing these questions with historical evidence (itself controversial) on the characteristics of relatively unregulated monetary systems. We consider what a laissez-faire payments system would look like with respect to inside money, outside money, and the unit (or medium) of account. Normative questions, for example whether a competitive payments system would be comparatively efficient, or by some other criterion better than the alternative, would require a separate lengthy essay to be treated adequately and so are not addressed here.

A Picture Based on Historical Precedents

Nineteenth-century proponents of free banking pointed to the monetary systems of Scotland (prior to Peel's Acts of 1844–45), New England (prior to the Civil War), and Canada (prior to World War I) as models of the competitive provision of money. Modern proponents have done likewise. Other cases of relatively unregulated competitive provision of money have also been uncovered.[3] The general characteristics of these historical systems provide a set of default values for considering what modern free-market monetary institutions would look like, because they arguably represent the outcomes of historical evolution in the absence of significant government intervention.[4] The following subsections sketch a stylized picture of com-

[3]On Scotland, see Cameron (1967), Checkland (1975), and L. White (1984a). On New England and its Suffolk Bank note-exchange system, see Trivoli (1979). On Canada, see Wells and Scruggs (1986) and Schuler (1989). Recently uncovered episodes of competitive currency production include Sweden 1831–1902 (Jonung 1987), Switzerland 1826–50 (Weber 1988), Revolutionary France (E. White 1987), and Foochow China 1800–1927 (Selgin 1987). For a global survey, see Schuler (1990).

[4]Economists who hold alternative visions of laissez-faire payments systems have argued on various grounds that the Scottish system does not really represent the outcome of laissez faire. Cowen and Kroszner (1989) believe that Scottish banks were too closely tied by law to redemption on demand in specie. Sechrest (1988) and Rothbard (1988), on the other hand, believe that redemption on demand was too laxly enforced. White (1989) responds to these arguments. Horwitz (1988) criticizes Rothbard's argument. Checkland (1968) long ago objected to Cameron's (1967) laissez-faire interpretation of

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petitive monetary institutions on the basis of historical precedents. The second half of the paper discusses the arguments as to whether this picture is a valid guide to what to expect from a laissez-faire monetary regime under modern conditions.

Outside Money and the Medium of Account

Commodity money emerges spontaneously out of barter for the well-known reason that traders discover the benefits of indirect exchange and converge on a widely accepted commodity as a generally used medium of exchange (Menger 1892). Convergence results from the benefit to each individual of using the medium that his potential trading partners will most readily accept. The same benefit suggests that a standard international commodity money will emerge with the rise of international trade, and that the commodity standard (even if not the everyday use of the physical commodity itself to make payments) will persist indefinitely in the absence of government action to supplant it. The historical cases of relatively free banking took place within the context of metallic standards. It is therefore natural (though not necessary, as discussed below) to assume that a precious metal monetary standard would prevail under laissez faire. Weber (1988, p. 460) observes that Swiss banks in the 1830s and 1840s, following their deregulation, "denominated their notes in the most stable currency units in use, which were the foreign specie units."

Full-bodied coins, in a competitive monetary system with a gold or silver standard, would be produced by private mints. Historical precedent exists in the dozens of private mints which operated during the Southern Appalachian gold rush of the 1830s, the California gold rush beginning 1849, and the Colorado gold rush of the late 1850s (Kagin 1981). A live model exists in the coinages of the Gold Standard Corporation of Kansas City. Mints essentially provide the service of certifying the weight and fineness of the pieces of precious metal used in trade. Self-interest would compel each private mint to be scrupulously honest, because any suspicion of short weight would make its coins difficult to pass and would, therefore, quickly depress the demand for its certification services.

In a specie-based monetary system with full-bodied private coinage, in contrast to some other conceived systems, there would be no "separation" of the medium of account from the basic medium of exchange, or separation of the unit of account from the integer units

Scottish banking. Woolsey (1985) and Cowen and Kroszner (1988) also argue that further steps in the natural evolution of the payments system would lead to different institutions. These arguments are considered below.

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denominating exchange media. (The "medium of account" is "the good in terms of which prices are quoted and accounts are kept" or equivalently "the good whose unit is used as the unit of account" [Niehans 1978, p. 118].) Firms would naturally find it convenient to post prices and keep books in terms of the commodity they routinely accept in payment, and in the units characteristic of that commodity. For like reasons of calculational convenience, competitive mints would all produce coins in multiples of a conventional monetary unit, which would simply be the standard weight unit for monetary metal. The unit of account would thus be represented in all coins, but would be conceptually distinct from any particular brand of coins.[5] Only in this sense would there be any "separation" of the unit of account from the media of exchange. Nationalization of minting services has in the past promoted a confounding of the monetary unit with the products of a particular mint.

Inside Money

In a historically precedented free-market payments system, members of the public would make the great bulk of their payments not with full-bodied coins but with inside money, consisting of specie-redeemable bank notes, tokens, and demand deposits issued by competing private banks.[6] For reasons of calculational convenience, small-denomination bank notes and tokens would be non-interest-bearing, carrying a constant face value denominated in round multiples of the monetary unit (Fama 1983, White 1987). Their exchange value would be maintained at par by their issuers providing redeemability for specie on demand. As some Scottish notes did before the practice was outlawed in 1765 and much as passbook accounts have commonly done, notes might well carry an "option clause" enabling the issuing bank to delay redemption at its option. Under competition the issuer would be obliged to pay the noteholder a contractually stipulated compensatory interest bonus in the event of invoking the clause. Such a contract, providing flexibility but also an incentive against its abuse, might be optimal for both the bank and its customers as a means of coping with circumstances that might otherwise require

[5]I am indebted to Leland B. Yeager for this point.

[6]Private bank notes have successfully circulated at some time in most countries, and over long periods in many. See note 3 above for references on the least-regulated cases. The monopolization of currency production by government banks is a relatively recent occurance in many nations. In Scotland and Hong Kong it has yet to occur (though the private issue of bank notes is today heavily regulated). Eichenbaum and Wallace (1985), as if innocent of this history, argue for the viability of privately issued currency by citing two recent cases of circulating tire company coupons in Canada.

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costly asset liquidation, give rise to a bank run, or end in costly litigation.[7]

Demand deposits, similarly redeemable, would bear interest. Notes could presumably continue to circulate, despite being dominated in rate of return by demand deposits, because they are bounce-proof. As fiat currency notes are today, bank notes would be preferred in transactions for which it would be too costly either to verify that the payer had sufficient funds to cover a deposit transfer or to accept unverified checks. The sphere of currency transactions might well shrink in the future as advances in the technology of point-of-sale electronic funds transfer continue to reduce the costs of verifying deposit transfers, but currency use is unlikely to vanish even in the 21st century.

Under competitive conditions all brands of bank notes and deposits would circulate at par throughout the economy. United States experience in the early 19th century, with discounts appearing on the notes of unit banks in cities far from the place of issue, is not pertinent to a laissez-faire system with unrestricted branch banking, particularly with modern transportation and communications facilities. Banks in a competitive system are all driven to accept one another's liabilities at par, either to profit from replacing rival notes with their own, or because par acceptance enhances the demand to hold the liabilities of all banks which are party to a mutual acceptance agreement (Selgin and White 1987). The same rationale has been driving banks recently to form mutual par-acceptance networks for automatic teller machine cards. As with checks and ATM card withdrawals, notes accepted by other banks would be returned to the issuer through an inter-bank clearing system for redemption. The same adverse clearing mechanism that limits deposit expansion in a conventional banking system would limit the issue of bank notes (Selgin 1988).

How many note-issuing banks a laissez-faire system would sustain, depending as it does on the economies of scale actually present, is, of course, an empirical question. Casual inference from note-issuing experience in Scotland (19 banks of issue when entry was closed in 1844) and Canada (10 banks of issue when the Bank of Canada was established in 1935) suggests that a nation the size of the United States today might support 20 or so nationally branched issuing banks. Inference from today's experience with credit cards or travel-

[7]The potential benefits of the option clause are considered in more detail by Dowd (1988a, pp. 34–35; 1988b, pp. 649–51; 1988c), who explains why bank customers would accept optional notes even when fully redeemable notes are also available. For a technical treatment, see Chappell and Dowd (1988).

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er's checks suggests fewer, perhaps five to ten. In any event there is no evidence to suggest that the number would be small enough to permit monopolistic conduct, especially considering the absence of entry barriers.[8]

The reserve ratio that the typical bank would find optimal to hold for prudential reasons, in the absence of regulation, is a similarly practical question. Historical experience in Scotland suggests a figure below 5 percent (see Munn 1981, p. 141).[9]

The clearing system for inside money would be managed by private institutions, as it typically has been in the past and is even today in Canada and the United Kingdom. It is not certain exactly how the system would be structured. The historical arrangement of the Suffolk system suggests the provision of clearing services by a single central clearing bank. Monopolistic pricing by such a bank is restrained by the contestibility of the market, as the Suffolk Bank discovered when it lost its clients to the Bank for Mutual Redemption (see Mullineaux 1987). The arrangements of the Scottish and Canadian clearing systems under conditions closer to free banking suggest that in the absence of relevant legal restrictions the banks would organize the clearinghouse as more-or-less symmetrical partners (Selgin and White 1988). Gorton and Mullineaux (1987) attribute a special hierarchical status in the banking system, one of quasi-regulatory power granted by the member banks, to the private clearinghouses of the National Banking era. The extent to which a clearinghouse in a laissez-faire context would develop such features is a question deserving further theoretical and historical consideration.[10]

Challenges to This Picture

In considering challenges to the foregoing picture of competitive monetary institutions, it is easiest to begin with questions regarding

[8]The *a priori* speculations of Summers (1983, p. 160) to the contrary notwithstanding. The successful recent entry of the Discover Card shows that competition for the market exists.

[9]In Switzerland, however, one major bank for which records survive (Weber 1988, p. 471) held specie reserves of around 50 percent. Either level is contrary to Rothbard's (1983, p. 117) suggestion that banks in a free-banking system would find it necessary to hold nearly 100 percent reserves. Nothing in a laissez-faire system would legally prevent a bank from making a contractural commitment to hold 100 percent reserves, and such a warehouse bank might attract some customers. But the bank would be placing itself at a great disadvantage in competing for most customers and would, therefore, not be typical.

[10]On the historical roles of private clearinghouses see also Munn (1975), Trivoli (1979), Timberlake (1984), Gorton (1985b), and Mullineaux (1988). For theoretical scenarios accounting for the emergence of clearinghouses, see Selgin and White (1987).

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inside money, and then to entertain the somewhat more fundamental questions regarding outside money and the unit of account.

Inside Money

It is possible that banks could develop cost-effective means for paying interest on bank notes, which competition would then compel them to employ. Simple post-dated notes, issued at a discount from eventual redemption value, would likely not survive because of the computational costs of figuring present value at each transfer.[11] McCulloch (1986) has suggested an alternative means for paying interest in an expected-value sense: Note-issuers could periodically hold lottery-like drawings to pay cash prizes to holders of notes with winning serial numbers. Winning notes, redeemable for a multiple of their face value, would be withdrawn from circulation. Losing notes would continue to circulate at par, avoiding any calculational inconvenience. It cannot be said *a priori* that such a scheme could not fly. Its absence in the past may simply reflect legal prohibitions against private lotteries.[12]

Quasi-interest payments on bank notes would still leave inside money consisting of debt claims, redeemable on demand at values not contingent on the performance of the issuer's assets. A more fundamental challenge to the historically based picture of free banking is the argument that under laissez faire, inside money would principally consist of *equity* claims or shares in financial institution portfolios (Greenfield and Yeager 1983; Cowen and Kroszner 1988; Goodhart 1988, pp. 86–95). Checkable money market mutual fund (MMMF) accounts provide a model. In contrast to the pre-specified interest earnings on ordinary bank deposits, MMMF accounts fluctuate daily to reflect the performance of the financial institution's portfolio. Shares are denominated in the unit of account, so that the number of shares in an account fluctuates, rather than the price per share. Fama (1983, pp. 8–9, 22) discusses the possible characteristics of a "mutual fund type of deposit," but also expresses the following judgment: "Since deposits with fixed promised payoffs in terms of the unit of account have always been common, such deposits are also likely to be important in a competitive unregulated banking system."

[11]Contrary to the hypothesis of Bryant and Wallace (1980) and Wallace (1983) that bank notes would carry definite maturity dates. See White (1987) for further discussion.

[12]See Cowen and Kroszner (1989, n. 3). One problem facing a bank implementing the scheme is how to prevent its deposit customers from withdrawing great quantities of notes just prior to a lottery drawing. This suggests that drawings would have to be held frequently or (as Tyler Cowen has suggested in correspondence) randomly.

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Historically, it was much easier for holders of inside money to monitor a financial institution's compliance with an ordinary debt contract, because monitoring an equity contract requires the holder to observe the performance of the institution's asset portfolio, and banks have traditionally held obscure assets (business and personal loans). The availability today of easily observed assets (publicly traded securities) for inside-money issuers may render this monitoring cost difference no longer significant.

The chief argument for expecting equity accounts to predominate is that they spare the account holder the worry, possibly reasonable in the absence of subsidized deposit insurance, of being last in line in the event of a redemption run. Fear of insolvency is reasonably thought to be the source of runs by noteholders and deposit-holders under a first-come first-served rule for liability redemption (Gorton 1985a). A mutual fund-type institution, without fixed-payout liabilities, cannot become insolvent (have total liabilities in excess of assets). A negative shock to fund assets is reflected in all accounts immediately, rather than (as in the case of a failing bank) falling only on those last in line to liquidate their accounts.

One reason for doubting that equity accounts would predominate is that the potential for runs might be more efficiently remedied in another way, namely by some combination of the option clause, better matching of the maturities of liabilities and assets, extended liability for bank shareholders, senior claimant status for holders of demand liabilities, and private deposit insurance. A second reason is that debt claims with predetermined payoffs may be preferred by risk-averse transactors.[13] It is an open question whether there is any inherent cost disadvantage against joining payment-transfer services to mutual funds. Were mutual fund firms to make direct use of the clearing system, equity accounts might be as easy to spend as demand deposits. That checkable mutual funds in the United States today piggyback on the interbank clearing system may be simply a product of regulatory policies that exclude nonbanks from the clearing system and prevent banks from offering mutual fund accounts.

[13]See White (1984c, pp. 707–9) and Mott (1989). Calomiris and Cone (1985) argue that fixed-payout bank liabilities do not really present depositors with lower risks given thinly capitalized banks. Without deposit insurance and other regulations, however, banks would not be as thinly capitalized as they are today (Benston and Kaufman 1986, p. 70). It can also be argued that when the future purchasing power of the medium of account is sufficiently unpredictable, equity accounts would better insure the *real* value of transactions balances. (I am indebted to Steve Russell for this point.) But this factor is unlikely to be significant under a metallic standard.

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Displacement of Commodity Outside Money

As Woolsey (1985, p. 2) argues, there are "private advantages to replacing specie in its monetary roles." Selgin (1988, p. 22) refers to this replacement as "fiduciary substitution." The primary advantage is that alternative assets pay interest (Cowen and Kroszner 1988, pp. 7–9). The monetary roles of specie are as a medium for (1) small and medium-sized transactions among members of the public, (2) over-the-counter redemption of bank-issued monies, (3) interbank settlements, and (4) redemption of clearinghouse liabilities. We will consider the possible displacement of specie from each of those roles in turn.

The use of full-bodied gold coins in circulation has traditionally been impractical for the smallest pieces of change. To illustrate, the smallest gold piece offered by the leading present-day mint devoted to producing circulatable precious-metal coins, the private Gold Standard Corporation of Kansas City, is five-hundredths of one troy ounce, which with gold trading at $400 per troy ounce has a spot value of $20. Banks of issue in a laissez-faire gold-standard economy would presumably offer small-denomination bank notes and redeemable tokens as a medium for making change. (The Gold Standard Corporation itself offers certificates, exchangeable at face value for its coins, in denominations as small as *one*-hundredth of a troy ounce.) The public would presumably find notes and tokens denominated in the unit of account more convenient than the traditional alternative, a parallel silver currency with fluctuating values in terms of gold.

It is possible that bank notes and tokens would cover the entire denominational spectrum and displace gold coins (or silver coins in an economy on a silver standard) completely from common circulation. The public might prefer notes and tokens, even in denominations practicably minted, if full-bodied coins are subject to significant wear (Woolsey 1985, p. 3). Private coins for circulation would naturally contain alloys to enhance their durability, but they would not be perfectly durable. The bulk of full-bodied coins may also be an inconvenience. It would be up to the public to decide whether these two factors would, in fact, outweigh the freedom that full-bodied coins provide from the (probably negligible) risk of default on notes and tokens. Historical experience with free banking suggests that specie might well be displaced from circulation. A contemporary observer of the Scottish system (Anonymous [1802] 1966, p. 39) noted that "Whoever has been to Scotland knows that, notwithstanding the appearances which denote real wealth, no coin but that of copper is common; gold and silver are scarcely visible; . . . Purchases and payments of all kinds are commonly made in paper."

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If specie no longer circulates, banks no longer need to hold inventories of specie ("vault cash") to service the public's demand for change. Banks would still find it necessary to hold positive inventories for meeting over-the-counter redemption demands if inside money were redeemable on demand for gold and if *non*-monetary demanders, therefore, sometimes came to the banks as the lowest-cost source of gold. In such a situation a bank might be able, however, to issue fully acceptable inside monies which did not carry any contractual pledge to provide over-the-counter specie redemption, as Woolsey (1985, p. 6) suggests. Or the inside monies might, by carrying a suitable option clause, allow redemption only with advance notice (and possibly transactions fees) sufficient for the bank to procure the specie, thus enabling the bank to hold a zero inventory.

A public already weaned from using specie in circulation might consider the lack of unconditional specie redeemability inconsequential as long as the inside monies were maintained at par. The issuing bank could pay a higher rate of return from an asset portfolio free of some former holdings of non-earning specie, thereby gaining a competitive advantage and leading other banks to follow suit. The inside monies would remain at par, under the conditions assumed, if the bank contractually assured its clientele that the monies would continue to be accepted at par through the clearing system, and the clearing system maintained claims against it at par.

We now consider the possible displacement of specie from its role in interbank settlements. In the simplest settlement system, banks physically exchange specie to settle interbank clearing balances, and each bank accordingly holds specie in its vault to be able to settle potentially adverse balances. Banks naturally have an incentive to foster development of an interest-earning settlement asset in order to economize on their holdings of non-earning assets. In some historical systems, banks have exchanged highly marketable securities to settle clearing balances. In other systems, the settlement medium has been clearinghouse account balances. This medium can be interest bearing if the clearinghouse holds only fractional reserves. The demand for instantaneous settlement today militates toward use of cleaninghouse account balances rather than securities, because account balances can have unambiguous unit-of-account values at every moment, whereas securities exhibit a bid-ask spread in intraday trading (White 1986).[14]

[14]Clearinghouse accounts could be debt claims or unit-of-account-denominated equity claims. In the latter case the total intraday account balance would be unclear beyond some amount, but a transfer of balances (the settlement medium) would still be fixed in unit-of-account terms.

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Woolsey (1985, pp. 5–6) has suggested that the historical use of specie in settlements *between* regional clearing systems could today be economically replaced by internationally traded securities. In a world of global around-the-clock trading, the direct exchange of securities would face the same problem of finding some unbiased method for splitting the difference between the current bid and ask prices of the securities. An alternative would be a global clearinghouse, with which regional clearinghouses or leading international banks would hold settlement accounts.

The final limit to the displacement of specie is approached as the clearinghouses are able to reduce their reserve holdings toward zero. A clearinghouse's gold holdings will not actually reach zero so long as the clearinghouse maintains a policy of specie redeemability on demand for its accounts. It will presumably maintain such a policy so long as member banks face over-the-counter redemption demands and need to be able to replenish their vaults promptly. Even though redemption demands may seldom be made, there will be a nonzero chance that some settlement account units will be redeemed for gold. An identifiable stock of commodity outside money, though possibly trivial in magnitude, will continue to be held.

If the banks are able to eliminate the need to hold gold in their vaults, through the developments considered above, it is no longer quite as clear that the clearinghouse will maintain a policy of specie redeemability *on demand.* Member banks, like members of the public, might consent to a delayed-redemption-option clause that allows the clearinghouse to hold zero inventories. With claims against the clearinghouse carrying the option of delayed redemption, however, member banks would need some other assurance that the claims would not fall below their par value in terms of gold. An assurance of acceptance at par through a higher clearing system obviously cannot be made by the ultimate clearinghouse. Some other enforceable or incentive-compatible contract must be specified for effectively maintaining clearinghouse accounts at par in the absence of redeemability on demand in the medium of account. Or to put it another way, the clearinghouse must be effectively bound to a policy that will limit the aggregate of clearinghouse account balances to the nominal quantity consistent with maintaining the purchasing power of account balances fully equal to the purchasing power of gold.

One way of contractually binding a clearinghouse whose accounts carried a delayed redeemability option would be to include a provision, after the fashion of the Scottish option clauses, of a bonus to the redeeming party. For the option contract to be agreeable to the account-holders, the bonus would have to be sufficient to make the

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present value of the delayed redemption payment at least equal to par.[15] The obligation to pay the bonus would compel the clearinghouse to avoid triggering redemption requests, by pursuing a policy that prevents its obligations from falling below par.

A possible policy for keeping clearinghouse accounts at par with minimal gold reserves is suggested by Fischer Black's (1981) proposal of a method by which a central bank could maintain a gold standard with "*near* zero reserves." The central bank would conduct open-market operations promptly to keep the high-powered money stock on the equilibrium path implicity necessary to maintain its purchasing power at par with gold. An increased demand for gold creating a loss of reserves, for example, would trigger the central bank to make open-market sales from its securities portfolio and thereby to contract the high-powered money stock, raising the purchasing power of money in accordance with the higher equilibrium relative price of gold, and consequently stopping and reversing the loss of reserves.[16]

If the near-zero reserve scheme is really feasible, then with delayed redemption the central bank could conceivably operate with zero reserves. Open-market sales would begin whenever redemption requests were registered. The purchasing power of its money would be raised to the level at which the central bank, in purchasing the gold called for, would suffer no capital loss. Open-market purchases would be used to dispose of any gold deposited (the central bank presumably continues to accept gold deposits at par in order to keep its obligations from going *above* par). A private clearinghouse wishing to operate with zero reserves could pursue the same open-market policy.

Black's scheme for holding near-zero reserves is feasible only if open-market operations affect the purchasing power of money quickly enough to avoid more than near-zero depletion of reserves. The holding of zero reserves by a clearinghouse with delayed redemption is likewise feasible only if open-market operations work quickly enough to avoid capital losses in gold purchases. Assuming feasibility, zero reserves would be *profitable* only if the prospective benefit from holding marginal reserves (paying fewer expected bonuses by reducing the probability of having to invoke the option clause) was less than or equal to the cost (foregone earnings) even at

[15]As discussed by Chappell and Dowd (1988, p. 6), who consider mutually beneficial option clauses in bank-note redemption contracts.

[16]Such a central bank policy of amplifying the effects of gold movements was sharply criticized by Hayek ([1937] 1971) for its effects on credit availability and the interest rate. Black does not consider any such effects.

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a zero level of reserves. This is by no means necessary and indeed seems unlikely.[17] The holding of positive reserves, in order to provide redemption on demand in the medium of account, may well be the most economical way to maintain accounts at par so long as the medium of account is in demand. We note that present-day money market mutual funds find it economical to meet redemption requests by holding positive dollar reserves (deposit balances at commercial banks) despite their cost.

A more radical departure that would eliminate the clearinghouse's need to hold outside money reserves, while providing a contractual arrangement for keeping clearinghouse accounts at par, is Greenfield and Yeager's (1983) concept of "units-worth" redeemability. This concept combines denomination of redemption obligations in something other than the redemption medium (an "indexed" redemption *rate*), and redemption for something other than the medium of account (a nonmoney redemption *medium*). They envision bank-like institutions offering exchange media denominated in common units of account, but not at all redeemable (either on demand or with a delay) in physical units of the medium of account. The purchasing power of transactions balances is instead maintained at par by their par acceptance through the clearing system. As in a clearing system which has largely displaced specie in the historical ways discussed above, an institution with adverse clearing balances settles them by transferring ownership of assets *worth* the stipulated number of units. In their system this is the only sort of redeemability made available.[18]

The application of units-worth redeemability to clearinghouse accounts[19] faces the problem previously mentioned, that the ultimate clearinghouse cannot keep its accounts at par through par acceptance at some higher clearinghouse. Units-worth redeemability would instead keep the purchasing power of (e.g.) gold-denominated clearinghouse account balances from falling below par virtually by defini-

[17]The optimizing bank in Chappell and Dowd (1988) seems unlikely to choose zero reserves because the bonus provides a capital gain to noteholders, and all noteholders, therefore, request redemption during any period in which the bank runs out of reserves and must invoke the option clause.

[18]Redeemability in physical units of the medium of account would be impractical because they propose that a wide-ranging basket of commodities serve as the medium of account. What I am calling "units-worth" redeemability they call "indirect" redeemability, a term that may misleadingly suggest redeemability for a claim which is in turn redeemable in the medium of account.

[19]Greefield and Yeager themselves assume that highly marketable securities will be directly used as the settlement medium. They do not discuss the possible use of clearinghouse accounts.

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tion. Any tendency for the purchasing power of account balances to fall below par (or equivalently, for the unit price of gold to exceed one) would be prevented by the obligation of the clearinghouse to provide redemption for "one unit" of account balances in settlement assets actually sufficient to purchase one unit of gold in the market. To consider the practical effect, consider again the shock of an increased demand for gold. This shock would, by reducing the value of clearinghouse assets relative to gold, force the clearinghouse to reduce the number of gold units in account balances (assuming equity accounts). Otherwise excess demand for gold at the par price would persist, and the clearinghouse could be sued by a customer who found "10 units" of account balances, or the settlement assets received by redeeming 10 units, insufficient to purchase 10 units of gold. The nominal quantity of clearinghouse balances would thus be appropriately limited to the quantity consistent with par value.

In an economy with gold or any other generally accepted medium of exchange as a medium of account, it is unlikely that banks (or their customers) would prefer accounts offering only units-worth redeemability to accounts offering actual gold redeemability. Settlement assets other than gold, such as securities, would presumably be subject to a bid-ask spread, raising questions about whether the cost of bridging that spread would be borne by the institution or by the account-holder. Would withdrawal of 10 units from an account net the customer as many settlement assets as could actually be *sold* for 10 units at the current bid price? Or only as many as could be *bought* for 10 units at the (higher) current asking price? In the former case the institution bears the turnaround cost of acquiring assets for their asking price and relinquishing them for their bid price. In the latter case the customer bears the cost, unless the assets happen to be the ones he wishes to hold.

One possible way to permit instantaneous intraday settlement while making ultimate settlement in securities would be to have the clearinghouse create daylight settlement overdrafts (collateralized by holdings of securities at the clearinghouse). This arrangement would eliminate the rationale for banks to hold as a settlement asset either the medium of account itself or clearinghouse accounts that compel the clearinghouse to hold the medium of account. Only end-of-day (or end-of-week) clearing balances would have to be settled by transfers of securities. Still, the above questions arise of who bears the cost of bridging the bid-ask spread in redemptions and interbank settlements. One option in settlements is to have both banks with negative and with positive clearing balances bear it. The clearinghouse would subtract securities from the first bank's portfolio at the

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bid price and add them to the second at the asking price, thereby capturing the spread as a fee for its transfer services. A bank could avoid this fee in the short run by borrowing or lending in the interbank funds market, and in the longer run by varying its liability volume to counteract any nonzero clearing balance.[20] It is far from clear, however, that this sort of settlement system, eliminating standing balances of a zero-spread settlement medium, is economical from the point of view of the participants.

Greenfield and Yeager implicitly recognize that actual redeemability would prevail in an economy with an exchange-medium good as medium of account. They assume that units-worth redeemability exists in an economy with no alternative, the chosen medium of account being (deliberately) unsuitable for use as a medium of exchange. We consider below the question of the possible "separation" of the medium of account from the basic generally accepted medium of exchange.

Private Noncommodity Outside Money

The leading positive question with regard to privately issued noncommodity outside money (also known as "private fiat money") is simply whether it could represent a stable institution. Hayek (1978, pp. 43–46) envisions that a private issuing bank would announce an intention to keep the purchasing power of its currency constant in terms of a particular basket of goods, but that "it would be neither necessary nor desirable that it tie itself legally to a particular standard." As other economists have argued, however, we need to consider whether the one-shot profit from a surprisingly large issue of irredeemable currency may render it profit-maximizing for the issuer to renege on its announced intention. If so, a policy of stabilizing the currency's purchasing power is "time inconsistent" and will not, in fact, persist.

As we do not have evidence from any historical trials, the question remains theoretical. Klein (1974) discusses the possibility (but does not definitely affirm the existence) of an equilibrium in which the present value of staying in business, embodied in the value of the issuer's reputation or "brand-name capital," exceeds the one-shot profit. In his discussion money-users have a particular form of adaptive expectations. In Taub's (1985a) overlapping generations model with rational expectations, the issuer definitely wishes to exceed the promised quantity of money in every later period. If an issuing firm can at the outset make an enforceable precommitment to the policy

[20]W. William Woolsey has suggested something like this in correspondence.

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it will pursue in every subsequent period, then competition would compel each firm to provide money which appreciates at an optimal rate. If such a precommitment is *not* possible, however, then private fiat money would be unstable and would have zero value in equilibrium. The same is true of government fiat money in a similar model where the government aims to maximize seignorage (see Calvo 1978).

From this perspective, a contractual commitment to redeemability may be viewed as an enforceable precommitment that makes a policy of limited issue time consistent, and thus makes privately issued money trustworthy and feasible (Vaubel 1977, Taub 1985b). Coase (1972) long ago suggested, in a nonmonetary context, that a buy-back clause can be used to resolve the time-consistency problem of assuring the buyers of a durable asset (in a case where price exceeds the marginal cost of production) that its price will not be reduced later by additional sales. Even Hayek (1978, p. 42) envisions that a new issuer of private currency would contractually bind itself to redemption at a specified rate in existing government currencies, thus guaranteeing a nominal floor value for the new currency. Some sort of indexed redeemability would likely be necessary to support the constancy of purchasing power that Hayek foresees being maintained even as the floor drops away.

The Medium of Account

The medium of account that initially prevails in a competitive monetary system depends on the historical path traveled. At least four candidate media of account have been discussed in the literature, implying different paths toward a competitive monetary system: (1) Government fiat currency (the dollar) serves as the present medium of account and would continue in that role for the time being if monetary competition were opened but no action were taken to institute a new standard. (2) The medium of account in the competitive payments system described in the first half of this paper was the commodity that historically emerged as the generally accepted medium of exchange. For gold to be the medium of account in a competitive monetary system in the future implies the remonetization of gold. (3) Private fiat currencies, if viable, would presumably serve as media of account for those who routinely accept payments denominated in them. In Hayek's scenario this acceptance would grow gradually. An alternative path involving a discrete switch would be to allow commercial banks to issue dollar-redeemable currency and then to suspend redeemability. (4) A multicommodity medium of account might, as proposed by Greenfield and Yeager (1983), be

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successfully established by government taking the lead in making and insisting on payments so denominated. A more gradual path is discussed below.

Rather than attempt to rank these courses of action normatively, we may consider the likely survivability of each medium of account. The convenience to each individual of conforming to the monetary standard that most trading partners are using, as is well known, poses an obstacle to the spontaneous adoption of any new medium of account. An established monetary standard can be expected to persist unless its purchasing power threatens to disappear, or becomes unpredictable enough that transactors find it worthwhile to denominate contracts in a nonstandard but more reliable medium. The "dollarization" of Mexico and Israel under conditions of rapid and erratic inflation provides examples. The use of a more reliable alternative medium of account presumably first appears in idiosyncratic long-term contracts, where its benefits (reduced uncertainly of *ex post* real payments) are greatest, and where the fixed costs of negotiating specific terms must be sunk anyway. Its use may then spread toward spot markets as traders become accustomed to calculating in that medium.

A commodity money (let us continue to assume that it is gold) could be displaced from its roles as a hand-to-hand and bank-to-bank medium of exchange, in the ways discussed above, without any effect on its status as the medium of account. Prices would continue to be quoted in standard units of gold, and inside monies would continue to be denominated in the same units, the two practices reinforcing one another. Even in the limiting case of zero monetary demand for gold, the interaction of supply and demand for nonmonetary gold would place a positive lower bound on the purchasing power of gold and would, therefore, allow gold to serve as the medium of account (see Saving 1976).

The medium of account capability of fiat currency, by contrast, is not robust to the elimination of monetary demand for that good, as Wallace (1983, p. 4) observes, because its purchasing power is not supported by any nonmonetary demand. A competitive monetary system on a base of government fiat money, as some authors cited above have proposed, would, therefore, be vulnerable in the long run to innovations that displaced outside money from its roles as currency and as settlement medium.[21] As the demand for dollars vanished, the purchasing power of the dollar would go to zero or (if supply were also reduced to zero) become undefined. The dollar

[21]I am indebted to George A. Selgin for discussion on this point.

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price level would become correspondingly unanchored. It is not coherent to suppose, as Cowen and Kroszner (1988, pp. 11–13) inexplicably do, that use of the dollar as a medium of account could nonetheless continue.

Hayek (1978, pp. 126–27) predicts that gold might displace depreciating government fiat currencies with the opening of free competition among monies, but would itself be displaced by private currencies whose purchasing power would be kept nearly constant. Woolsey (1985, pp. 9–10), though not referring to Hayek's prediction, hints at one way banks might help bring about this second step. Under laissez faire a bank could offer indexed certificates of deposit and long-term loans, denominating these assets and liabilities in a unit of constant purchasing power as measured by the prices of a specified bundle of goods. Different banks might experiment with different bundles, with a common bundle eventually becoming standard. As it became familiar, the bundle unit might spread to many debts and private contracts. Transactors with bundle-denominated payments to make might find it convenient to have bundle-denominated media of payment, prompting banks to offer checking accounts and bank notes in the new unit. Use of the bundle as a medium of account might then spread to spot prices as sellers became routinely willing to accept payment in bundle-denominated media.

Bank accounts and notes denominated in bundle units would be unit-worth-redeemable claims against the banks. Hayek pictures something slightly different: currencies denominated in bank-specific units whose purchasing power is kept nearly constant in terms of a bundle but whose value is not *defined* in terms of the bundle by any sort of redeemability. The bank-specific currency rather than the bundle would serve as medium of account. As argued above, however, resolution of the time-consistency problem may require that the value of bank liabilities be supported by redeemability. If so, there would be no separate bank-specific currency units.

Conclusion

Should the Hayek proposal for free entry into money production give rise to a common multicommodity medium of account denominating all prices and bank liabilities in the manner just described, and should the inherited outside money be completely displaced from its medium-of-exchange roles (in currency, settlements, and somehow even redemption of clearinghouse liabilities) in the ways discussed earlier, the result would be a spontaneously evolved Greenfield-Yeager system. Should a single commodity such as gold

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emerge and persist as the medium of account, yet the roles of outside money disappear, the result might be considered a degenerate version of the Greenfield-Yeager system. Should that commodity continue to function as outside money, the result would be a free banking system in the traditional sense.

My own hunches regarding the results of allowing fully free competition in money are that the roles of outside money would not disappear. An inherited outside money would continue to perform those roles and would also continue to serve as a medium of account for the time being. A government fiat outside money accordingly would not lose its value immediately even in the absence of legal restrictions against development of private substitutes. As outside money was eventually displaced as currency, however, and as the private clearinghouse found ways to reduce its holdings of outside money (even supposing that actual redeemability in outside money dominates units-worth redeemability as a means of maintaining the par value of clearinghouse accounts), the value of government fiat money might ultimately become unacceptably tenuous. In that event an alternative medium of account would become predominant. In light of the time-consistency problem, it would not be a bank-specific currency, but likely gold or a multicommodity bundle for which bank monies would be directly or units-worth redeemable. Competition among private issuers would reveal which medium, and associated redemption contract, better secures the trust of the public. I would guess that gold, with its long history and continued serviceability as an outside currency, and with its tangibility as a redemption medium, would have a competitive advantage.

However plausible and historically grounded, these remain only hunches. It is necessary to make explicit one's hunches about how competitive monetary institutions would look, if one wishes to evaluate in any utilitarian way the desirability of allowing them. But we should keep in mind that the ingenuity of potential monetary entrepreneurs in devising contracts makes it impossible for any economist to list all the forms competitive money might take, let alone to judge authoritatively which forms would survive the market selection process in the future. This is all the more true because free enterprise has been denied for such a long time in the production of money.

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Is Private Money Optimal?

Richard N. Cooper

White's paper is a positive analysis about how free banking, including the free issue of bank notes, might work. He avoids judgments or analysis with respect to the social benefits or costs of such a system as compared with present arrangements or with alternative monetary arrangements. As the paper stands, it mixes two quite different things: free banking, and a commodity money of some kind, including a tabular standard in which money is indexed to a general price index. One section of the paper separates these issues and addresses free banking without any redemption requirement. It does not reach a definitive judgment, but it leaves the impression, which is correct in my view, that such a system would not be viable because of the temptation of note issuers to issue too many notes at public expense. Such a system, therefore, would be at least as unstable as a system of government-backed fiat money. Perhaps free banking, in fact, cannot be divorced from some system of commodity-based money, at least as an ultimate redemption obligation. But commodity-based money can certainly be divorced from free banking, and an evaluation of alternative monetary arrangements should clearly address what is the incremental contribution of free banking over some form of commodity-based "anchor" to the monetary system. The merits of commodity-based money for the international system are addressed in Cooper (1988).

Two Key Operational Questions

At the level of positive analysis, two key operational questions have not been addressed in White's paper: (1) What, if any, will be the legal requirements for creation of a note-issuing bank? (2) What notes will the government accept in payment of taxes, and what notes

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will the government use for its own payments? In addressing the second, very practical question, the government cannot avoid "taking sides" among the competing banks of issue, and thereby endowing the banks whose notes are acceptable with a special status.

Complete laissez faire on these two questions offers the attraction to each taxpayer to found his own "bank" for the sole purpose of issuing bank notes to pay his taxes. If the government redeems them at once, the taxpayer is no worse off, except for printing costs, which need not be high for this purpose. If the government delays in redeeming the notes, the taxpayer has received an interest-free loan. Indeed, the taxpayer could go a step further and print notes to buy government securities, which themselves can be used to pay taxes on maturity. If all taxpayers did this, the interest rate on government securities would be bid down almost to zero, the government would get virtually interest-free loans, and government securities would be the equivalent of money. So seigniorage would accrue to the government after all.

The above process could take place on a more limited scale even if the government imposed some standards for creating a note-issuing bank, provided the standards were not too onerous. Partnerships would be formed for the sole purpose of paying taxes, unless the prospect of immediate redemption were high, in which case the monetary regime would effectively be a standard based on the redemption unit.

But if the standards for bank creation are set high, the system no longer has easy entry and free banking. For the government to require membership in a clearinghouse in order for it to accept a bank's notes represents only a proximate solution to the problem. What are the requirements for membership in the clearinghouse? The government has merely passed a governmental function to a private body.

The Tendency toward Monopoly

A positive analysis should also try to characterize the equilibrium, or steady state, if any, that arises from a proposed system. White suggests that "there is no evidence to suggest that the number [of banks] would be small enough to permit monopolistic conduct." That may be a correct judgment, both for the past and for the future. But history is a complex process, subject to many jolts and turns. Analysts should ask whether there is any *tendency* toward monopoly, which would be realized if "other things are equal" for a sufficiently long period of time.

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There are three reasons why, in a stationary environment, one bank eventually would dominate the scene under free banking with commodity redemption. The first has to do with the socially unnecessary process of periodic exchanges of bank notes collected by the various banks. The fewer the banks, the higher the return of each bank's own notes, which can be reissued, and the lower the fraction of the notes that must be physically shipped to other banks of issue. The limit to this incentive for consolidation is a single bank, thus avoiding all exchange costs.

The second reason has to do with the reserves that must be held against possible redemption of bank notes. Here we have the well-known pooling principle: If calls for redemption are not perfectly correlated, reserves to be held against possible redemption can be conserved by concentrating them and pooling all the risks. Whether there are savings from this source depends on the exact probability distribution of desired redemptions from public noteholders and from other banks. But on plausible assumptions there are likely to be savings on needed reserves arising from an ever greater concentration of the reserves in one institution; that is, in the limit, from a single bank or its functional equivalent.

Third, low-cost bank notes offer a great attraction to counterfeiters. This attraction would be increased in an environment in which many different (non-standardized) bank notes circulated simultaneously, since the public would frequently come into contact with unfamiliar notes and would have no basis for judging whether they were counterfeit. Thus the public would be bilked by counterfeiters and, in response, would gravitate toward a relatively few—in the limit, one—kind of bank note.

For all these reasons the steady-state in a stationary environment would be a single bank. That is, redeemable note issue is a natural monopoly. Of course, diseconomies of scale in management or other factors might overcome these tendencies toward monopoly. And the exercise of the monopoly would in any case be limited by the possibility of new entry; that is, it would be a contestable monopoly, but a monopoly nonetheless. Is a private monopoly, even a contestable one, superior to a public monopoly? The paper does not address that normative question.

The Outcome under Uncertainty

This outcome would arise in a stationary environment. In historical time, the environment is anything but stationary. It is subject both to short-run turbulence and to long-run drift, or trends, and on both

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accounts to much uncertainty. Such uncertainty *might* reinforce any established monopoly, for example to minimize the problem of counterfeit notes, making entry more difficult, so long as the established monopoly bank is performing its functions adequately. On the other hand, the uncertainty might inhibit the emergence of a single dominant bank, and it would certainly be an environment in which some members of the public could regularly be exploited by new banking ventures that are dishonest or simply unlucky.

I read an interesting tidbit recently: Fully 26 and 32 percent of the FHA home mortgages issued in 1981 and 1982, respectively, when mortgage interest rates ranged from 14 to 17.5 percent, are still outstanding (*Washington Post*, 18 February 1989, p. E1). This situation is true despite the fact that 30-year mortgage rates have been in the range of 8.5 to 11 percent for at least three years. And the situation remains despite the fact that transactions costs for refinancing mortgages are comfortably covered by a 200-basis-point difference, except when the individual plans to sell his house within 2 or 3 years. (But even that contingency has been covered by some refinancing arrangements that absorb all of the refinancing cost in exchange for a higher than market interest rate.)

The gains from refinancing these high-interest-rate mortgages are substantial, over $230 a month on a $100,000 mortgage for an interest rate 3 percent lower, and indeed many refinancings have taken place. But what about those who have not refinanced, despite advertising by banks encouraging it and despite the passage of more than 3 years during which refinancing has been attractive? It must be due to ignorance, apathy, or inertia in human behavior. Some people are sharp-witted and quick to act when it comes to issues of money and finance; others are befuddled and slow to act even when given encouragement and sizeable financial reward.

I suspect a substantial fraction of every society is made up of the second category of people. This means that in a continually changing and uncertain environment some fraction of the public will be financially ignorant, and hence the more gullible among them will be the object of financial swindles of all kinds. Most possible swindles are avoided by the fact that a positive act is required to get drawn into them. But everyone has to use money, whether he is interested in it or not. Hence, if money creation is laid open to free entry, the possibilities for swindle in any nonstationary environment will be legion; and given greed, they will be exploited.

The Social Response

What should be the social response to this possibility? Social Darwinians could argue that nothing should be done to protect such

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ignoramuses who are not always on their toes. If they are regularly defrauded and driven into destitution, that outcome is part of a desirable if painful process of eliminating them from society. The same argument could have been made for retention of full freedom of action that existed in the 19th century to sell patent medicines and other nostrums without governmental interference: It would teach the public to stay on its guard, be skeptical, and demand proof of efficacy. Those who did not meet these standards should be weeded out of society.

But we decided collectively long ago to become a "kinder and gentler" society and to create minimum standards and assurances that everyone could count on with regard to food and drugs—and with respect to money. Moreover, it is costly in time and effort constantly to have to check and recheck the necessities of daily life. So enforced minimum standards not only protect the gullible and ill-informed, an admittedly paternalistic view, but also involve a great gain in efficiency in terms of time and effort conserved by everyone in not having to think constantly about what particular notes you receive in change from a purchase and how long you want to keep them. These informational gains must be set against any losses, for example in innovation, from having a government monopoly in currency creation.

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The Case for a Laissez-Faire Monetary System

Karen Palasek

White's paper is at once speculative and defensive. The purpose of his paper is itself twofold, and thus the two-pronged approach is warranted. Ultimately, White wants to convince us that a laissez-faire monetary system is a desirable alternative to the morass of modern central banking. The characteristics of a modern laissez-faire monetary system are extrapolated from an examination of the binding constraints that laissez-faire banking would, presumably, impose on individual banks and on the banking system as a whole. White's argument here critically depends on his grasp of operant market mechanisms, that is, binding constraints on bank activity, and their logical extension into a modern (hypothetical) laissez-faire setting. As such, he risks not only logical errors, but policy irrelevance as well, in asking that we examine such an alternative in the first place.

In balance to the projections about modern laissez-faire banking, his paper raises many, if not all, of the foreseeable objections to a laissez-faire monetary future. This allows a concise review of the major arguments that have been raised concerning such a monetary system. White's rebuttal (the second prong of the paper) of those arguments includes a defense of the logic of his earlier speculation. And indeed, if the laissez-faire alternative thus summarized and defended is a relevant alternative as well, White has made a powerful contribution to the growing number of monetary economists who favor government's exit from the monetary arena.

It is the task of a final section of the paper to attempt to demonstrate the relevance and desirability of laissez faire in money. Competing with laissez faire for attention in policy circles are a number of alternative reforms in addition to the status quo. White's ability to sway or convince us must ultimately rest on the efficiency and stabi-

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lity, or safety, of laissez faire in comparison to conceivable alternatives. With this final section, the paper becomes a short, self-contained discourse on laissez-faire money, its detractors, and its competitors for reform.

White has edged out onto a limb in making even general projections about a course of future events to be spun out of a (not-currently existing) laissez-faire approach to money. Nevertheless, there is evidence, both theoretical and historical, to support his views. A body of literature exists that documents the viability of laissez faire with respect to money and lends credence to White's speculation about the characteristics of a modern system. White's analysis of a laissez-faire future turns on an identification of the binding constraints that would operate in lieu of regulatory constraints under laissez faire. Understanding the consequences of these constraints for monetary institutions requires an understanding of incentives facing bank managers (or any individual or institution in the business of issuing inside money). As such, White's discussion could be couched entirely in theoretical terms. Happily, his historical work (White 1983, 1984) on the Scottish banking system and the work of Selgin and White (1987) lends empirical support to the theoretical predictions about a laissez-faire monetary future.

The standard approach to U.S. monetary history has held that 19th-century American free banking demonstrated conclusively the failure of monetary laissez faire in the United States. But closer examination of that period and of the nature of free banking itself does not support the accepted wisdom on laissez faire in money. Instead, it forces us to draw a sharp division between the regulatory system known as free banking on the one hand and laissez faire on the other. Most significantly, this division facilitates an understanding of important differences in the behavioral incentives dominant in each system.

American Experience with Laissez Faire

Renewed interest in a laissez-faire monetary system grew out of a series of reexaminations of the American free-banking era (Rockoff, 1974; Rolnick and Weber, 1982, 1983, 1984, 1986). In the United States, free banking did not approximate laissez faire in most important respects and must, therefore, be rejected as a model of laissez faire in action. The experience of banks in New England under the Suffolk system, however, may well demonstrate a laissez-faire monetary system in action. To be sure, the New England regional banking system that developed and thrived between 1824 and 1863

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falls short of an entirely laissez-faire approach. Regulation by state and local authorities, including industry entry via bank charter, persisted throughout the era. And so it was a sort of ad hoc laissez-faire approach to banks and money, rather than an intentionally chosen one, which prevailed.[1] Despite the presence of various banking laws in New England, however, research indicates that the binding constraints on industry were market-driven rather than legal.

A brief description of the Suffolk system reveals that it was a system that emerged out of a market for privately issued, redeemable, competitive currencies. Individual banks pursuing profit-maximizing behavior with respect to redeemable note issues and specie reserves discovered that their self-interest was best promoted by maintaining a sound currency—that is, by assuring its noteholders continuous redeemability into the reserve currency: gold. The emergence of a centralized clearinghouse mechanism in the form of the Suffolk system served at least two critical functions. First, it generated strong incentives to maintain sound currency; second, it created efficient two-way information flows about the quantity of notes the public desired and the quality of the notes issued by the bank.

It was never the intention of the Suffolk bank to increase the circulation of notes issued by banks outside of Boston. These so-called "country banks" were scorned by Boston. In fact, when the Suffolk bank and other large Boston banks joined together to form a note-clearing operation, it was their express intent to drive the country notes out of circulation in Boston, thus making room for larger issues of their own. Quite the opposite result was achieved. The country notes, typically circulating at discount in the city, were purchased by the associated banks and presented for redemption, a profitable business for the Boston banks. The threat of, or actual, redemption for specie forced the country banks to curtail their note issues so that they were prepared to redeem notes on demand. Thus the quality of country notes in circulation grew, and instead of declining in acceptability, the circulation of the notes grew as well (since their reputation was now improved). In some sense the campaign to drive the discounted country notes out of Boston was entirely successful. The actions of the Boston banks did not drive out the notes themselves, but they did eliminate the discount at which country notes circulated. In fact, the redemption operations were even suspended for a time because the discount on the country notes fell to less than one-half of one percent, and the banks simply could not

[1]See Palasek (1988) for a discussion of the New England banking system under the Suffolk bank as a laissez-faire system.

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make sufficient profit at such low rates of discount on the notes.[2] After a hiatus of several years in which the discount again grew (partly due to a lack of policing action by the Boston banks), the Suffolk bank alone took on the business of note clearing and redemption. Though it was a voluntary clearinghouse operation, banks found it again in their interest to participate and, therefore, to maintain redeemability on their notes.

Modern Laissez Faire

A point-by-point comparison between White's projections for laissez faire and the closest American experience under the Suffolk system reveal the parallels between the two. Those projections about the qualities of a modern laissez-faire system include the following: (1) the emergence of competitive inside monies redeemable in a reserve commodity, but no legal tender or outside money; (2) a commodity money—gold, most probably; (3) private mints and private certification of the reserve base; (4) voluntary specie reserves with no legal minimum reserve ratio; (5) typically low specie reserves to economize on the commodity base; and (6) clearinghouse operations to ensure (not insure) safety and soundness of notes. This last characteristic is the key to creating incentives that compel bank managers to issue only that quantity of notes that the public will willingly hold, given their demand for liquidity and the commodity reserve.

White defends his choice of the foregoing laissez-faire model by arguing that alternative proposals either lack comparable incentives to those generated under laissez faire, or that the proposals require additional specifications or legal restrictions that were not considered by their authors. While he does not dismiss the plausibility of all such alternatives, it is White's contention, and mine as well, that his proposal offers a desirable combination of characteristics with the simplest, and arguably most-efficient, operating form. His proposal is really an outline for a self-regulating monetary system that is both safe from the stance of the noteholder and sound from the viewpoint of a commodity-based currency. In the search for monetary stability, White's proposal deserves respect and attention.

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[2]See Trivoli (1979) for a full discussion of the history and development of the Suffolk system, including the requirements imposed by the Suffolk on the banks in its clearinghouse system.

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Can Monetary Disequilibrium Be Eliminated?

Leland B. Yeager and Robert L. Greenfield

Macro Disequilibrium

"Real" factors, such as the oil shocks of 1973–74 and 1979, can play some role in macroeconomic fluctuations (see Hamilton 1988, Strongin 1988, and writings cited there). Yet even such shocks have a monetary aspect. Our task, however, is to focus on monetary disturbances to business activity and on their possible elimination through private-enterprise-oriented reform.

The monetarist diagnosis of price inflation is too compelling to require further mention here, but the diagnosis of business slumps may be worth reviewing. (On booms, see Birch, Rabin, and Yeager 1982.) People produce their own particular goods and services to exchange them for the outputs of other specialists, currently or later. These exchanges occur not by barter but through the intermediary of money or of claims ultimately to be settled in money. Money routinely circulates to accomplish these transactions, and people (and firms) hold it in amounts related to their receipts and payments. Desired money balances depend, in large part, on the physical volume of transactions contemplated and on the prices at which goods and services change hands. Actual money balances add up to the money supply, and if it equals the total of desired money balances, the flow of transactions continues without monetary impediment.

If the actual money supply somehow falls short of desired money balances, people act to build up their money holdings by displaying reduced eagerness to buy and increased eagerness to sell on the markets for goods and services and securities (Wicksell [1898] 1965, pp. 39–41). On these markets, by and large, quantities demanded

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fall short of quantities supplied at the old pattern of prices. Since transactions are voluntary, the short side of each market prevails: Actual transactions fall off. Frustration of exchanges discourages production of goods destined for exchange and discourages purchases of labor and other inputs: The business decline feeds on itself. At some reduced volume of employment and production and transactions, people would no longer effectively desire money balances totaling more than the actual money supply: A monetary quasi-equilibrium—an unpleasantly suppressed disequilibrium—would be reached.

In principle, any actual quantity of money, however small, would suffice for full equilibrium, if prices of goods and services would fall far enough to make an otherwise insufficient nominal quantity suffice to satisfy the demand for real money balances at full employment. It takes time, however, for prices fully to achieve this position. Many prices (and wages) are sticky, with the consequence that markets for many goods and services fail to clear quickly.

By "stickiness," we do not mean rigidity; we do not mean that prices are unresponsive to market imbalances (Leijonhufvud 1981, pp. 59–60, 110–12, *et passim*). Different prices (and wages), however, are responsive in different degrees. Because prices are interdependent, yet necessarily are set in a decentralized and piecemeal manner, it takes time for them to achieve a new equilibrium pattern after a pervasive disturbance.

Stickiness in this sense is a fact of reality. It presupposes no irrationality. Reasons for it are readily understandable, including those set forth by Okun (1981) and Akerlof and Yellen (1985). Stickiness *would* suggest irrational behavior on the part of one benevolent and omniscient auctioneer capable of simultaneously adjusting all prices and wages to their new general-equilibrium values, but it suggests no irrationality on the part of the many decentralized price-setters and wage-negotiators of the real world. It is a misconception to blame these people for irrationally throwing away gains from trade by leaving prices at nonmarket-clearing levels (compare Yeager 1986). We do not think it is helpful, by the way, to maintain the thesis of cleared markets and continuous equilibrium by redefining the terms involved.

In recent years, "advanced" thinkers have disparaged recognition of price stickiness. Supposedly, the alleged phenomenon is unexplained by any theory (Barro 1979). The disparagement seems to rest on two notions: first, that belief in stickiness is distinctively Keynesian—which is a gross misreading of the history of thought

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(compare Yeager 1986; Mises [1912] 1981, pp. 133–36)—and, second, that Keynesianism is discredited and out of fashion.

Abolition of price stickiness, even if it were possible, contrary to fact, would hardly dispel the problem of monetary disturbances in a system of decentralized decisionmaking. Great volatility of the price level would undercut the rationale of money itself (Lerner 1952) and could even aggravate miscoordination, as through expectations and debt burdens (Driskell and Sheffrin 1986, De Long and Summers 1986, Caskey and Fazzari 1987, Fisher 1933). An economy beset by monetary disturbances faces a Catch-22: It is damned whether or not it exhibits great flexibility of wages and prices.

Ample evidence justifies emphasis on the question of balance or imbalance between actual and demanded quantities of money. The pervasiveness of brisk or depressed business conditions throughout most sectors of an economy, together with the persistence of such conditions for many months or even years, testifies to some pervasive and not quickly remedied condition. For over 200 years, monetarist writers have pointed to associations between money-supply and business fluctuations and to apparent leads of the one over the other. Many episodes of money supplies' being changed by causes independent of income and price levels discredit the "reverse causation" argument concerning the alleged low evidential value of the observed associations.

Recent experience is widely said to discredit monetarism. The evident lack of any tight, dependable relation between money supplies and prices and nominal and real incomes—notably, the puzzling decline of money's velocity since about 1981—helps vindicate, once again, the insistence of "Austrian" economists that economic life exhibits no quantitative relations comparable to the constants of the natural sciences. In particular, the old monetarist proposal for steady monetary growth looks like a dubious idea.

But we must distinguish between policy prescriptions on the one hand and theory and evidence on the other. Doubts about the money-growth rule in no way discredit the theory and historical experience that justify insisting on the monetary aspects of business fluctuations.

How might the actual quantity of money come to fall short of demanded holdings? (For brevity, we hasten over the more readily understandable case of an excess supply of money.) Most obviously, an actual shrinkage could leave money in excess demand. A policy blunder might be the cause; or, under an international gold standard, a drop in foreign demand for the home country's exports, bringing loss of base money through a balance-of-payments deficit, could cause the shrinkage. An excess demand for money can result from

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a mere slowdown in nominal growth as money demanded at the prevailing price level continues growing because of normal growth in population and productivity and in the full-employment volume of transactions. (Warburton [1966] places emphasis on this case.) Erratic monetary growth can cause periods of stagflation, when nominal demands for money associated with the catching-up of wages and prices to earlier rapid monetary growth now impinge on reduced nominal growth.

Our existing monetary system is absurd in having a unit of account the size (purchasing power) of which is the supply-and-demand-determined value of a fiat medium of exchange. (Woolsey [1987] describes what he calls unit-of-account and medium-of-exchange problems. They involve, respectively, a unit of account that is away from its equilibrium value—a disequilibrium price level—and an excess demand for or supply of the medium of exchange. Under a system of our existing type, of course, the two problems go hand in hand.)

Most of us employ or think in terms of the dollar at least as often each day as we employ units of length and weight. Yet the size of this essential unit is whatever value the scruffy dollar bill happens to possess; its size is defined poorly if at all and is maintained precariously. Its undependability impairs the meeting of minds between borrowers and lenders and other transactors; it impairs economic calculation and coordination.

A related absurdity of our existing system concerns the *manner* in which the supply of and demand for money interact in determining and altering the dollar's value. They do not meet on a single, specific market and determine a single, specific price (like, say, the market for and price of copper). Since monetary disequilibrium cannot be corrected by straightforward adjustment of a single price on a single market, its correction requires adjusting myriads of separate but interdependent prices on myriads of separate markets, a process that can be drawn out and painful.

Disequilibrium between the supply of and demand for money can persist as long as it sometimes does because, for one thing, nominal supply does not adjust "automatically" to meet the nominal demand. (*Real* supply does tend to meet real demand, but only through the roundabout, protracted, and possibly painful price-level process.) The nominal quantity of money in the United States nowadays is determined predominantly on the supply side in the manner the textbooks describe in terms of the quantity of base money and the money-multiplier formula. (Using this formula does not, of course,

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imply belief that the parameters in it are fixed in some nonsubjective manner.)

Monetary Reform

An ideal reform would presumably accommodate nominal supply to nominal demand—not, however, in the determinacy-robbing sense of the real-bills doctrine but rather in the sense of accommodating the nominal quantity of money to the quantity demanded at full employment *and* at the existing, independently determinate, price level. Conceivably, of course, the central bank could practice a policy of always deliberately adjusting the supply of fiat money to the full-employment demand for it at the existing price level, and much scope does remain for instructive discussion of the old proposal for a price-level-stabilization rule. So far, however, we have not had such a policy; and we have reason to consider ways of getting its result in a manner that would be durably independent of governmental blunders.

We ourselves have a proposal, which we call (admittedly somewhat unsatisfactorily) the BFH system to acknowledge some ideas borrowed, modified, and recombined from the writings of Fischer *B*lack, Eugene *F*ama, and Robert *H*all (compare Greenfield and Yeager 1983; incidentally, we cringe at being associated with some other ideas these writers may have been advocating.)

Government would be banished from any role in the monetary system other than that of defining a unit of account or numéraire. We envisage a unit defined by a bundle of goods and services comprehensive enough for the general level of prices quoted in it to be practically steady. Merely by conducting its own accounting and transactions in this Unit—we tentatively so name it, with a capital *U*—the government would give private parties a strong incentive to adopt the same Unit.

Freed from any special regulation, financial institutions would meet demands for media of exchange by supplying bank notes and checking deposits denominated in the bundle-defined Unit. They would quite probably also offer equity shares in mutual funds lacking fixed nominal values, funds on which shareholders could draw checks, much as shareholders can draw checks on money market mutual funds nowadays. By holding assets including loans, bonds, stocks, and possibly even real estate and other investments and by issuing note and deposit liabilities and checkable equity claims, these institutions would in effect be repackaging their loans and investments into media of exchange.

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No longer would the size of the numéraire, our Unit, be determined by the supply of and demand for any medium of exchange. The Unit would be defined by goods and services having supplies and demands of an almost entirely *non*monetary character.

For customers to take its banknotes and deposits seriously, each issuing institution would have to keep them redeemable. Because redemption in the actual bundles of goods and services defining the Unit would be inconvenient for customers and banks alike, redemption would very probably be promised and accepted in some convenient redemption medium, say gold, in amounts actually worth, at prevailing market prices, as many standard bundles as the Unit denominations of the banknotes and deposits being redeemed. A 100–Unit note, for example, would be redeemed in property actually worth 100 standard bundles.

The great bulk of such redemptions would probably take place in settlement of net balances due at clearinghouses, where each bank would routinely present notes issued by and checks drawn on other banks acquired from its own depositors. As a medium of settlement among themselves, banks might conceivably use gold (transferring it in amounts valued in Units rather than in prespecified physical amounts); but they would probably find it more advantageous to use interest- and dividend-bearing securities or shares in mutual funds operated by the clearinghouses for just such use in settlements. Clearinghouse members would transfer these settlement media among themselves in amounts worth, at actual market prices, as many standard bundles as the Unit-denominated sizes of the net balances being settled. If Bank A owed Bank B 100 Units, for example, Bank A would transfer to Bank B interest-bearing securities actually worth 100 standard bundles.

Under such a system, no bank could keep more of its note and deposit liabilities in circulation and of its checkable equity accounts outstanding than the public was willing to hold. A temporarily overexpanded bank would experience adverse clearing balances and the resulting transfer of both assets and liabilities to banks with which the public was more willing to do business.

The country's financial system as a whole, furthermore, would also experience market pressures tending to keep its monetary liabilities (including checkable equity accounts) no larger and no smaller in Unit volume than the public desired to hold at the price level corresponding to the commodity-bundle definition of the Unit. The demand for media of exchange would govern their actual quantity.

The situation would partially resemble that of a small country under an international gold standard. World-market conditions and

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its fixed exchange rate would dictate its price level to the gold-standard country; and its gold-based money supply would respond to the demand for money balances. An excess demand for or supply of money tends to be adjusted away by a balance-of-payments surplus or deficit and the associated inflow or outflow of gold.

The situations would not be entirely the same, however, for a gold-standard country could experience money-supply growth or shrinkage caused not only by an increase or decrease in the domestic demand for money but also by some other disturbance to its balance of payments (or some other influence on its monetary gold stock, such as new gold discoveries). The money supply of a country on the BFH system would be determined more nearly completely on the demand side. No base money—nothing comparable to gold or to government fiat money—would exist to serve as the foundation for a total money supply that would contract or expand in the manner described with the aid of a money-multiplier formula. No such supply-side constraint or impetus would control the country's money supply.

In the BFH country, the stock of banknotes, deposits, and checkable equity funds would be the product of business firms engaged in financial intermediation. (Of course, "country" need not be taken literally. We mean a territory or a set of transactors within which the BFH system prevails.) These media of exchange would represent, as we said, the "repackaging" of the earning assets acquired by the intermediary firms. The firms would supply their intermediation services in response to the public's demand for them, neither constrained nor driven by considerations associated with any stock of base money. The firms' inducement, the price paid for their services, would be the excess of the yields they obtained on their earning assets over the interest and dividend rates that competition would require them to pay to the holders of their moneylike liabilities.

Suppose that the public became more liquidity-minded, less willing to hold bonds and stocks and other "primary securities" (to use the terminology of Gurley and Shaw), and more anxious to hold media of exchange. In consequence, yields would tend to rise on primary securities, whereas interest and dividend rates on checkable deposits and equity funds necessary to retain or attract holders would tend to fall. The spread in favor of financial intermediaries, the price of their repackaging services, thus would rise. How small an actual rise would materialize would depend on how price-elastically the intermediaries supplied their services. Anyway, the intermediaries would wind up holding more primary securities than before and

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having issued a greater volume of media of exchange, all of which would be appropriate to the postulated change in the public's tastes.

Or suppose, similarly, that growth in population and productivity raised full-employment real income and the associated demand for media of exchange. By that very token, the volume of business available to intermediary firms would expand. Again, they would wind up holding more primary securities and having issued more banknotes and checkable deposits and fund shares.

For a different example, suppose that some development reduced the demand for money. Higher interest rates on deposits would become necessary to retain holders; and thus faced with a shrunken net reward for their services, intermediaries would shrink the volume of their media of exchange supplied, which would befit the shrunken demand for them.

These examples illustrate one channel, that involving the banks' spread of earnings on assets over interest paid on monetary liabilities, which is to say the price of intermediation services, whereby the supply of money would adjust to the demand for money balances. Another channel involves the arbitrage that would occur if the general price level, and particularly the total price of the BFH commodity bundle, should begin to deviate from the one corresponding to the definition of the Unit. We should reemphasize that the real size of the Unit, quite unlike that of the dollar under our existing system, would not derive from the demand for and restricted supply of any base money (the nonexistence of a base money underlies the main advantages of the BFH system). Instead, the Unit's size would derive from its commodity-bundle definition, made operational by the banks' competition-imposed commitment to what might be called indirect convertibility, as explained above.

Suppose, now, contrary to all likelihood, that a drop in the demand for money and eagerness to spend it on commodities should raise the price of the standard bundle above its definitional level of U1.00 to as much as U1.20. Under these conditions, holders of Unit-denominated notes and deposits could do much better than simply spend them on goods and services. Exercising their redemption privileges at the issuing institutions, holders would redeem each one-Unit note and deposit in as much gold or whatever else the redemption medium might be as actually equaled in value, at current market prices, the total of the components of the bundle. In the supposed abnormal situation, holders would take away a quantity of the redemption medium quoted at U1.20. They could sell this medium for notes and deposits denominated at U1.20, redeem these in redemption medium salable for U1.44, and so on.

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To engage in such arbitrage, people would try to obtain notes and deposits for redemption by exhibiting reduced eagerness to buy goods and services and increased eagerness to sell them, all of which would put appropriate downward pressure on the general price level and on the total price of the standard bundle. The hypothesized deviation from what corresponded to the definition of the Unit would vanish. At the same time, the volumes of money and intermediation services would shrink, as befitted the shrunken demands for them.

No scramble for the redemption medium would pose a problem; the redemption medium would not be analogous to a base money. It is unlikely, anyway, that one single thing, like gold or like one specific security issue, would have been chosen as the sole redemption medium in the first place. More likely, several widely used suitable commodities or, still more likely, several actively traded investment-grade securities would be chosen as alternative redemption media. These media, furthermore, would probably not be demanded solely or even mainly for this purpose; instead, they would be widely used as industrial materials or, more probably, widely held as investments. Most important, these media would have prices of their own that are free to move in equilibrating their own supplies and demands. In the redemption of Unit-denominated notes and deposits, remember, these media would change hands by *value* and not in prespecified physical amounts. They would serve as mere go-betweens in the process of indirect redemption whereby each one-Unit note or deposit would operationally be kept equal in value to the bundle, and kept equal much more conveniently than by redemption directly in its component goods and services.

Suppose, now, an opposite but equally improbable discrepancy: A strengthened demand for media of exchange has deflated the price of the bundle to U0.80, with corresponding deflationary pressures on the general price level. Nobody would want to exercise the redemption privilege. On the contrary, banks would hasten to expand their loans and investments and perhaps to buy real estate and other assets at their currently depressed prices, paying with newly issued notes and deposits and knowing that each one Unit of these is redeemable in redemption media currently purchasable for as little as U0.80. Such behavior would reverse the hypothesized downward deviation of the price level and also satisfy the strengthened demand for money.

These examples merely illustrate the possibilities of corrective arbitrage, which would no doubt be multifarious. Much of the arbitrage would no doubt involve the operations of the banks at their clearinghouses. Stabilizing expectations would play a role. The

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examples should not call to mind inflationary and deflationary episodes that only subsequently get reversed. They suggest, rather, kinds of market forces that would operate continuously in the first place to nip price-level deviations in the bud and to adjust actual quantities of media of exchange to the demand for them.

Besides pointing out the interest-rate-spread and price-arbitrage channels of "automatic" adjustment of money supply to money demand, we should make one more point. Because deposits and checkable equity accounts would bear interest and dividends at competitive rates (and possibly even banknotes as well, through a lottery feature; compare McCulloch 1986, pp. 74–75), these things would serve not only as media of exchange but also as investment assets. Holders could adjust their holdings of what they consider money not merely by adjusting their total holdings of such assets but also by shifting, in their own minds, the dividing line between what they consider money and what they consider investments. The very concept of a quantity of money would become radically fuzzy in a BFH world. This fuzziness would not spell price-level indeterminacy because, to repeat, the purchasing power of the Unit, instead of being determined by interaction between supply of and demand for money, whether defined broadly or defined narrowly as base money, would be determined by the Unit's commodity definition.

Misconceptions

Next we must deal with several misconceptions that have appeared about the BFH system. They are not all compatible with one another. First comes the notion that since the system would abolish money *as we have known it*, especially base money, and since it would "separate" the medium of exchange and unit of account—which in a certain sense it would do—it must entail the textbook inconveniences of barter (White 1984; O'Driscoll 1986a, 1986b).

Yet "separation" in no way means that people would be making and receiving payments, awkwardly, in miscellaneous commodities and securities with fluctuating values that would have to be translated into numbers of Units on each occasion. Instead, people would be using coins, banknotes, and checking accounts furnished by banks and denominated in Units.

People would also probably be drawing checks on equity accounts offered by some banks as an investment and transactions medium combined, accounts not denominated in Units. (Shares in these accounts, incidentally, would have flexible market-determined prices; and to the extent that these shares constituted part of the total

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stock of media of exchange, their price flexibility would contribute to "automatic" equilibration of money's supply and demand.) Checks drawn on these equity accounts, however, instead of being denominated in the miscellaneous shares themselves, would be denominated, like other checks, in Units. (Compare checkable money-market mutual funds nowadays.) When such a check cleared, its writer's account would be reduced by however many shares then had the same market value as the denomination of the check.

Banks would be freed from any special regulation. With competition spurring innovation, the payments system would become more efficient than the one we now know.

People would have a stable Unit, moreover, in which to carry out their pricing, contracting, accounting, and cost/benefit calculations. They would no more need to understand the operations that keep the Unit's purchasing power in correspondence with its commodity-bundle definition, including routine redemption of net balances due among banks on account of notes and deposits presented at the clearinghouses, than they need to understand Federal Reserve operations and other influences on the value of the dollar nowadays.

"Separation" simply means that the Unit would be defined independently of any particular medium of exchange. Various media would hitch onto the Unit. In the United States nowadays, in contrast, the dollar as unit of account is defined in fiat base money issued by the government (Federal Reserve); most concretely, it is defined by the dollar bill, the real size of which depends, rather haphazardly, on supply and demand.

Before 1933 the dollar was defined by 23.22 grains (1.5046 grams) of pure gold. The linkage established by direct convertibility ordinarily forestalled the question whether the unit of account was the government dollar or the gold it "contained." When a government cut the gold content of its money or went off its metallic standard entirely, then people stuck with the government unit and not with the metal as their unit of account. Many historical examples testify to this amply understandable response.

Under the BFH system, the Unit would not be defined by any dominant medium of exchange or base money because none would exist. No particular one of the several or many competing private banknote issues would define it—not the one-Unit notes of this or that or any other particular bank. The Unit would be defined independently of any money issues by the standard commodity bundle. Each bank, to have its coins and notes and the checks drawn on itself taken seriously, would have to denominate its issues in Units and honor validly drawn Unit checks. It would have to maintain its issues

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at their full values by restricting their quantity to the quantity the public was willing to hold at the values denominating them and by undertaking indirect redeemability. The great bulk of redemptions would probably take place routinely at the clearinghouses in settlement of net balances due among financial institutions.

If any particular bank should blunder into overissue so badly as to default on fully settling its balances at the clearinghouse, that bank's notes and checks on its deposits would come to be accepted at a discount only, if at all. The overissuing bank could not count on anyone continuing to accept its notes and deposits at their full Unit values, regarding its one-Unit notes as *defining* the unit of account (while the issues of competing banks and the commodity bundle itself came to be quoted at a premium). Not at all. Competition demands prudence and would make the situation of each issuer of media of exchange sharply different from that of government, a monopoly issuer of base or dominant money.

Note that we refer to monopoly issue of *base or dominant money*. Of course we do not deny David Meiselman's contention (1987, esp. p. 259) that already, today, the bulk of the U.S. money supply, namely checking-account money, is issued competitively by thousands of private banks. We merely do not find that fact as reassuring as Meiselman seems to find it. Competition determines the quantities of these various bank-issued dollars *relative* to one another. Their subordination to the dominant Federal Reserve dollar, however, means that their *total* quantity gets determined predominantly on the supply side and in the manner described by the money-multiplier analysis of the textbooks.

Nonanalytical sloganeering against "a governmental money monopoly" and in favor of "free banking" (e.g., Lavoie 1988), besides conveying the erroneous impression that merely dropping reserve requirements and allowing private banks to issue banknotes would eliminate monetary disequilibrium, invites reactions like Meiselman's. Such a reaction skirts the question of how the *total* money stock gets determined. Our existing system determines the quantity of money on the supply side rather than in response to the demand for money balances. This condition would remain even if private banks were allowed to determine their own reserve ratios and to issue notes, provided a dominant or base money continued to exist on which bank money was pyramided and in which it was redeemable.

Another misconception is that the BFH system amounts to hardly anything different from a privatized composite-commodity standard (McCallum 1985, p. 37n.). That proposed standard is an instructive but nevertheless old idea that reformers have been independently

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inventing for many decades. It is a particular proposal for the regulation of government currency, which would continue to be the base money, in which banks and other financial intermediaries denominated their notes (if any) and their deposits and onto which they pyramided these monetary liabilities.

The BFH system, in radical contrast, would abolish base money, governmental or otherwise. Its commodity bundle, far from constituting a base money or serving in its regulation, would merely define the unit of account, and define it independently of any particular medium of exchange. Absence of any base money and thus of any particular reserve medium would radically change the problem of bank runs and the supposed necessity of a central bank as lender of last resort. Absence of any particular base money and reserve medium that banks and their depositors might scramble for in times of distrust would get rid of this kind of contagion of runs. (No scrambles for assets used as redemption media and clearinghouse settlement media would cause problems, either; for, as explained above, they would change hands in value amounts rather than in physically specified amounts; and their own flexible prices, furthermore, would work to equilibrate their supplies and demand.)

Still another misconception (McCallum 1985, pp. 34–35) is that prices and the price level would be indeterminate under the BFH system (and even that its advocates consider this supposed indeterminacy an advantage). Such a notion may partly derive from quantity-theory thinking and from recognition that the quantity of BFH money would not be pinned down either by a link to gold (which exists only in definite amounts and is costly to produce) or by deliberate regulation. As Joseph Schumpeter explained around 1930 (Schumpeter 1970), anticipating the equivalent of Don Patinkin's analysis (1956 [1965], 1961), some "critical figure," some nominal magnitude determined otherwise than by ordinary market processes, is necessary for the determinacy of a monetary system. The most familiar examples of setting such a critical figure are specification of some price (such as the dollar price of gold, made operational by two-way convertibility) or control of some nominal quantity (such as the quantity of government fiat money; control of nominal GNP, if feasible, would also do the trick). The BFH system would provide determinacy by defining the unit of account with a commodity bundle, by setting the bundle's total price at 1 Unit. This definition would be made operational by indirect convertibility of notes, deposits, and checks.

Even so, at least one critic (Hoover 1988) has questioned whether merely *indirect* convertibility would suffice for determinacy. Sup-

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posedly, holders of notes and deposits would have to have the right to require their direct redemption in the actual goods and services composing the bundle. In reply, we might insist on the inconvenience for all concerned and on the extreme unlikelihood that anyone would want all those commodities, and want them in the exact proportions in which they entered the bundle. We might point out that the rare money-presenter who did so want them could obtain them, if not by simply spending his money on them in the first place, then by selling the redemption medium he initially received and buying the commodities with the proceeds, leaving open the question of whether he or the money-issuer should cover his transactions costs. Or we might modify our description of the BFH system by postulating that competition would compel money-issuers to offer the option of actual direct redemption in commodities, even though hardly anyone would exercise that option. We do not want, however, to take this cop out. We want to face the analytical issue: Would merely *indirect* redeemability of notes and deposits denominated in the BFH Unit suffice to give them definite purchasing powers? Notes and deposits thus kept equal in value to an amount of redemption property in turn worth 1,000 (say) bundles would themselves be worth that many bundles; if A and C are each equal to B, then A and C are equal to each other—is that not true?

We may develop our argument by considering Irving Fisher's compensated dollar (1920). That dollar would always be redeemable in a definite amount of gold. The amount, however, would be subject to adjustment every two months or so in view of a price index. Adjustability surely would not keep the dollar from having a determinate value corresponding to its gold content at each time. Now consider a privatized and decentralized and otherwise modified version of the compensated dollar: The amount of gold in which the dollar is redeemable would be adjustable not just every two months but, say, every hour of each business day; and the adjustment would take account not only of the market prices of the goods and services entering into the calculation of the price index but also of the price of gold itself. Although the dollar would have a changeable gold content, the content would be definite at each instant; and the dollar's purchasing power should be correspondingly determinate.

So far as determinacy is concerned, there seems to be no essential difference between the compensated dollar as described by Fisher himself and the modification described here, which is the BFH system. Neither in Fisher's system nor in the BFH system would it matter whether the redemption medium is gold itself or some other convenient asset.

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Fisher's idea applied to government base money is still worth considering as a live option because of transitional difficulties involved in moving to a completely privatized and decentralized system. (In particular, getting rid of government base money would either require its repudiation, perhaps through inflation, expropriating its holders, or else require its replacement by interest-bearing, burdensome government debt.) Two modifications to Fisher's own proposal for compensated government base money seem worth recommending: Adjustments in the dollar's gold content should be made in view not only of incipient changes in the target price index but also of changes in the price of gold itself; and adjustments should be made not just every month or two but almost continuously, perhaps several or many times each day. High-tech communications and data-processing capabilities not available in Fisher's day would make continuous compensation technically feasible. The International Market Index of 50 foreign stocks traded in the United States, for example, is recalculated every *15 seconds* during the U.S. trading day (*Wall Street Journal*, 16 December 1988, p. C11). The same point about technology also would apply, of course, to the BFH system.

The continuously compensated dollar, resting on a commodity- or index-defined unit of account and two-way interconvertibility between unit-of-account worths of a convenient redemption medium, would bypass the difficulties commonly cited as objections to a price-level-stabilization rule for monetary management. Or so it seems to us. Admittedly, however, this solution seems suspiciously simple, and we await instruction on just what may be wrong with it.

Conclusion

The full-fledged BFH system, complete with privatization and decentralization, would offer advantages beyond those we have had space to explain here. It would bypass, for example, two actual or supposed disadvantages of a monetary system of the ordinary type—the anti-capital-formation effect of money, which concerns Maurice Allais and James Tobin, and the waste of real resources in tight cash-balance management, which concerns Milton Friedman (compare Yeager 1989). Apart from the puzzle of how to get rid of government base money gracefully, we can answer "yes" to the question that our title poses: Through institution of a privatized system under which the supply of money responds to the demand for it, and at a stable price level, monetary disequilibrium can indeed be eliminated.

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Eliminating Monetary Disturbances

Allan H. Meltzer

The Yeager-Greenfield paper continues the authors' work on fundamental aspects of monetary theory. Their work draws attention to such basic issues as the role of money, the conditions for existence of a price level, the limits to the role of government in the monetary process, and the costs of achieving the social benefits provided by a monetary system.

On first reading I missed the main, novel idea in their current paper. Yeager and Greenfield suggest that the social benefits can be achieved in a system of private money. They use the term "private money" to mean a monetary system in which government has a minimal role. The government does not issue base money, produce or specify a medium of exchange, function as lender of last resort, hold inventories of money, set an exchange rate, or maintain convertibility. The role of government in the monetary system is limited to defining a unit of account and conducting its own transactions in that unit. The government does not require others to transact in the unit except when transacting with the government, so legal tender is restricted to government transactions. Convergence to the unit as a basis for accounts and valuation is not imposed. To define the unit, the government specifies a bundle of goods and services that is comprehensive enough to keep stable the general level of prices quoted in the unit of account. Prices would be quoted in units and, if the system worked as the authors intend, goods and services would be priced in the unit. Relative prices would change for the usual reasons.

The advantage claimed for the system is that the price level would be constant or, as the authors suggest, nearly so. More importantly,

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if the system works as claimed, the anticipated price level would be constant. People would plan on the properly held anticipation that their decisions to invest and save would not be subject to the risk of price-level changes. Relative prices would change as required by changes in tastes, technology, and population. This is, for me, an attractive outcome. We must see what it would cost to achieve and how it might work.

A Money of Real Value (MORV)

The authors introduce a simple, but remarkable, scheme. Conventional monetary systems fix the nominal value of money (and other financial assets) and require real values to adjust. In these systems the government either determines the nominal stock of (base) money or specifies a rule or agency which controls the nominal stock. The public determines the price level at which they willingly hold the outstanding stock. In the Yeager-Greenfield proposal, this is reversed. The government fixes the real value of money by choosing a commodity basket that serves as the unit of account. The stock of (nominal) money is determined by the public's demand.[1]

It is best to think of the commodity basket used to value the unit of account as rather comprehensive, say the real GNP of the country or perhaps the domestic component, real GDP. Each unit of money is a claim to a fixed basket of this kind, a fraction of the GDP. No matter what happens to the relative prices of the items in the basket, or the relative prices of items in and out of the basket, a unit of money maintains its real value. By fixing the unit of account, the authors claim to have fixed the real value of money denominated in that unit. Denote the unit by "U."

The authors illustrate the working of the system at times by analogies to the gold standard. This is potentially misleading. If the basket of commodities defining U is not relatively comprehensive, the price of U's relative to non-U's will be subject to greater and more frequent shocks. A more comprehensive basket gets the benefit of diversification—lower risk of fluctuations in its relative price. A very comprehensive basket, however, faces the problem of shifting weights on the items in the basket, disappearance of items from the basket, and introduction of new items. Money that is stable in terms of a U defined as the GDP of 1900 would not have the stability properties

[1]The authors confused me, and possibly others, by describing their system as a BFH (Black, Fama, Hall) system. Their proposal is very different. A better name would be real-valued money or, if an acronym is needed, perhaps MORV—money of real value.

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relevant for current money holders that the authors stress. The authors do not address issues of this kind.

The government does not issue any money. The medium of exchange is provided by banks, which may choose to use the unit of account defined by the government.[2] Suppose for the moment that they do. Banks would issue and accept deposits and make loans denominated in U's. Neither banks nor the public would choose to incur the cost of buying, selling, and holding baskets of the GDP commodities, so the value of bank notes and deposits cannot be maintained by exchanging the medium of exchange for fractions of the GDP. Some other mechanism is required to fix the value of money. Yeager and Greenfield introduce clearing drains as the principal means of restricting overissue by a single bank. At one point, they assume that banks use gold (valued in U's) to settle surplus and deficit positions. Since there is an opportunity cost to holding gold, the authors suggest that earning assets would dominate gold in this role.

To understand how the scheme would work and how it differs from conventional schemes, suppose, first, that there is a real shock to productivity. Under conventional arrangements, the price level falls if the shock is positive and rises in the opposite case. The price change adjusts the stock of nominal money until real balances are willingly held. In the Yeager-Greenfield scheme, the price level remains fixed. The change in productivity alters the level of output and, therefore, the demand for money, the volume of borrowing, and the stock of notes and outstanding deposits. If more commodity baskets are produced with the same resources, more money is produced (in response to demand) at an unchanged price level. Each unit of money retains its value in U's.

Next, suppose that an improvement in the payments system lowers the demand for money. People are now able to carry out their transactions with smaller average cash balances. In the conventional system, as the demand for money declines, prices rise to reduce real balances. In the Yeager-Greenfield scheme the public buys assets from the banking system, reducing the stock of money. Output, or GDP, as conventionally measured is unchanged, but the stock of money is smaller, so each note or deposit is a claim to a larger U at an unchanged price level.

[2]To avoid doubts about convergence to a common unit, the authors should let the government impose a legal tender requirement. This would simplify contracting. Since the government does not produce money, there would be no risk of inflation or deflation and no effect on the price level.

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As a final exercise, assume that the return to real capital and the productivity growth rate increase permanently to a new level. The demand for real balances increases with output, but since the equilibrium return to real capital has increased, the rate of interest is higher. The quantity of real balances demanded falls with the rise in the rate of interest. The stock of money declines with demand. Again, each unit of money is a claim to a larger real GDP at an unchanged price level. At the new equilibrium, money per unit of output is lower than before, and the productivity of each monetary unit is higher. The nonpecuniary return to money balances is higher—reflecting the higher productivity of monetary and nonmonetary assets.

Some Problems

Any change in the price of items in the basket relative to items not in the basket will change the relative price of assets denominated in U's. Suppose that the non-U's are imports. From international finance theory, we know that no general statement can be made about the optimality of either price-level stability or exchange rate stability (the relative price of U and non-U baskets). The authors do not claim that their system would be optimal, but some attention to its welfare properties would be welcome. Consideration of the comparative welfare properties of the authors' proposal relative to proposals to adopt a monetary rule that maintains price stability on average would bring some additional perspective.

In the past, I have proposed a rule that sets base money growth equal to the maintained average rate of output growth minus the growth rate of base velocity. A rule of this kind would keep the anticipated price level constant and, if major countries would adopt rules of this kind, the rule would also reduce fluctuations in exchange rates. Bennett McCallum proposed a similar rule for domestic price stability without the exchange rate feature. Milton Friedman's rule is well known. There is, then, no shortage of proposals for price stability. The proposals just mentioned, like the Yeager-Greenfield proposal, do not address the problem of adoption—the apparent absence of sufficient incentives for the public or government to adopt a rule for price stability. The alternative proposals, however, do not require the radical changes in financial structure required by Yeager and Greenfield's proposal.

To this point, I have maintained the authors' assumption that the system would converge to a common unit of account. It is not obvious that convergence would occur. Suppose that the price of some asset or basket, call it W, has negative covariance with the price of baskets

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denominated in U's. Banks or firms can denominate claims in W's. Innovations in the payments system that lower the value of real money balances in U's raise the value of balances in W's and conversely. Money denominated in W's may coexist with money denominated in U's. I do not see that this has been ruled out.

Negative covariance is one example. The more general point is that covergence is not ensured. If the government's role is limited to choosing the unit of account, the public is free to introduce other units and use them as mediums of exchange and units of account.

The authors do not claim that interbank clearing achieves price stability. They introduce the use of a redemption medium with a price expressed in U's. The redemption medium may be a single commodity or a small basket of commodities, presumably commodities with relatively low costs of information, storage, and transactions. Since it is costly to hold the GDP, the authors suggest that banks would pay out or accumulate the redemption medium whenever the actual price level in U's differs from the established norm. This suggestion introduces several complications. One is the possibility of occasional sharp changes in the relative price of the redemption unit and the risks that this might pose for banks and their customers. A second is the possibility that the redemption unit takes on the properties of a monetary base. Suppose bankers find that profits increase if they hold (reserves of) redemption units and denominate assets and liabilities in redemption units, a subset of the basket of U's. Would the public demand that the redemption units remain convertible into U's? Would they pay the marginal cost of maintaining this convertibility?

It is not difficult to see how a monetary base would develop. Banking history gives many examples. Suppose a bank has all of its assets and liabilities denominated in U's, but the assets are illiquid (or can be sold only at a substantial reduction in price). Or, suppose the bank has accumulated a large portfolio of marketable securities with a relatively long term to maturity. To protect against risks of this kind, depositors or noteholders may prefer banks with relatively large holdings of relatively safe assets or assets with known properties such as gold or short-term securities. To reduce risk, smaller banks may contract with larger banks that offer to rediscount. I see nothing in the Yeager-Greenfield proposal that prevents this ubiquitous pattern from emerging or developing a monetary base—an asset used to settle balances between banks, held as a reserve by banks, and used as a medium of exchange by the public.

Yeager and Greenfield say very little about the operating characteristics of their system. They note that erratic monetary growth can

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cause stagflation. It is not money growth alone that causes this problem, however. There are also contracts, the difficulties of reading noisy signals, and other causes of sluggish price adjustment. Reducing price variability, if achieved, would raise welfare. However, we do not know whether the variability of relative prices and real output would remain unchanged or increase enough to bring offsetting losses. The authors tell us very little about issues of this kind, so we cannot judge whether their system would increase or reduce the variability of real values.

Finally, let me add a few comments on the title—"Can Monetary Disequilibrium Be Eliminated?" The answer must depend on the meaning of equilibrium. If the issue is one of maintaining approximately zero variance of the absolute price level or, as the authors prefer, of matching nominal demand to nominal supply at a nearly constant price level, I believe they have suggested a way of achieving substantially lower price variability. It does not follow that their proposal reduces fluctuations in consumption and production.

The challenging issue about the design of monetary institutions, as I see it, is how to achieve stability of anticipated prices and minimize the costs and risks to society that accompany the social and private benefits of using a medium of exchange. The authors in their paper and in their previous work earn our gratitude by giving attention to some of these issues and offering a novel and interesting proposal that is worth developing more fully.

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Legal Restrictions, Financial Weakening, and the Lender of Last Resort

George A. Selgin

> It is not unlikely that the bolstering up of banking systems by their Governments is a factor which makes for instability.
>
> —Vera Smith (1936, p. 5)

Introduction

A popular defense of central banks and fiat money claims that they are needed to protect the payments system against the peril of financial crises. A central bank can act as a "lender of last resort" to other banks, assuring depositors that they need never fear a general banking collapse; fiat money in turn guarantees that the lender of last resort itself will never go broke.[1]

A crucial assumption behind the lender of last resort argument is that fractional-reserve banking is inherently "fragile" and crisis prone—that central banking and fiat money are an unavoidable response to market failure. According to Minsky (1982, p. 17), "conditions conducive to financial crises emerge from the normal functioning of a capitalist economy." In a free market, says Minsky, such conditions will occasionally produce "wide and spreading bankruptcies" that could, however, be prevented by "an alert lender of last resort" (p. 13).[2]

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[1]According to Barth and Keleher (1984, p. 16) "to function as a lender of last resort [a central bank] must have authority to create money, i.e., provide *unlimited* liquidity on demand" (emphasis added).

[2]Minsky even tries to rule potential criticisms of his "financial-instability hypothesis" out-of-court by declaring (1982, p. 16) that "No theory of the behavior of a capitalist economy has merit if it explains instability as the result either of exogenous policy mistakes or of institutional flaws that can be readily corrected."

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In this paper I take issue with the lender of last resort argument by showing that its underlying assumption is false: Fractional-reserve banking systems are *not* inherently weak or unstable. They are weak and unstable because legal restrictions have made them that way. The collapse of a fully deregulated banking system would be highly improbable if not impossible. It follows that central banks and fiat money are at most "second best" solutions to problems peculiar to regulated banking.

The paper proceeds in two parts. The first concerns the role of more familiar legal restrictions in fostering financial fragility and crises. It focuses especially on banking problems in the United States. The second shows how restrictions on private *currency* issue in particular have historically been an especially significant cause of financial weakening; its focus is more on developments in Great Britain. Because central banking presupposes a monopoly in currency supply, the existence of central banks itself turns out to be a crucial cause of financial crises.

A "Financial Weakening" Hypothesis

Why should banks, unlike other profit-maximizing firms, evolve in a manner that exposes them lemming-like to periodic waves of bankruptcy? I believe the answer is that they do not evolve that way at all but have been weakened by legal restrictions ultimately aimed at generating revenue for the government or at propping up special interests within the banking industry. In the United States the adverse effects of particular restrictions are well understood. What is not appreciated is how their cumulative effects have led to the present reliance upon a lender of last resort.

Were an evil dictator to set out purposefully to weaken a fractional-reserve banking system and to increase its dependence upon a lender of last resort, he would (1) increase the risk exposure of individual banks to enhance their prospects of insolvency; (2) create an environment conducive to "spillover" or "contagion" effects, so that individual bank failures can lead to systemwide runs; and (3) obstruct private-market mechanisms for averting crises. Banking regulations in the United States and elsewhere have unintentionally done all three things. All that can be said in these regulations' favor is that some help to mitigate the unfortunate consequences of others.

Individual Bank Insolvency

Anti-Branching Laws. Legal restrictions subject individual banks to a higher risk of becoming insolvent by reducing their opportunities to avoid risk and by actually subsidizing bank risk taking. Of restric-

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tions having the first effect, by far the most destructive have been laws against branch banking. Such laws account for the fact that the United States has more than 14,000 banks and more than 3,000 "thrift" institutions, most of which are small and localized. According to Mullineaux (1987, p. 77), even the largest U.S. banks "are not large in relation to the size and wealth of the population," and only one of them is among the world's top ten. The smallness and lack of diversification of so many U.S. depository institutions has made them chronically failure-prone: Unit banks in the farm belt have been over-exposed to farming losses, and Texas and Oklahoma banks have suffered from their involvement in oil-industry loans and in local real-estate development. In the Northwest, banks have relied excessively upon loans to the timber industry. Such over-exposure of loan portfolios reflects the fact that banks' lending opportunities are to a large extent bound by their location. Even larger money-center banks have been adversely affected by anti-branching statutes, which by restricting their domestic business opportunities

> have encouraged them to be outward-looking. Because of their size and their presence in the major money centers they were well placed to help in the recycling of the OPEC surpluses, especially as Latin America developed a voracious appetite for funds. Many of them consequently developed an exposure to Latin America that far exceeded their capital bases [Mullineaux 1987, p. 41].

As White observes (1986, pp. 895–96), restrictions against branch banking increase a bank's exposure to liability-related as well as asset-related risks. Branched banks typically rely upon a broad cushion of retail deposits gathered by local offices as their principal source of funds. Unexpected withdrawals at some branches can often be compensated for by a transfer of reserves from others. In contrast, unit banks, particular in large money centers, have relied heavily in recent years upon "liability management," attracting wholesale deposits as an alternative means for persons far removed from the money centers to take advantage of better investment opportunities there. The danger of this approach is that, in contrast to retail deposits, wholesale deposits are much more likely to be withdrawn in response to adverse rumors, not just because their size often makes them ineligible for insurance, but because their owners are less able to verify the truth of a rumor and are less bound by considerations of convenience than retail depositors are to remain loyal to any particular bank. The dramatic collapse of Continental Illinois was to a large extent due to its heavy reliance upon liability management—a by-product of Illinois' strict anti-branching laws—though Continental

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would no doubt have become insolvent anyway as a result of its unwise and excessive energy loans.

No episode illustrates more dramatically the weakening effect of anti-branching laws than the Great Depression. Between 1931 and 1933 several thousand U.S. banks—mostly small unit banks—failed. In contrast Canada's branch-banking network did not suffer a single bank failure even though in other respects Canada was just as hard hit by the depression—it could hardly have escaped all of the adverse effects on Canadian business of a 33 percent fall in the U.S. money supply. (The Canadian money supply fell by about 13 percent.) Ironically the United States at the time *did* have a lender of last resort, whereas Canada did not.[3]

This comparison of U.S. and Canadian experience has by now been made so often that it is in danger of becoming a cliché. Yet the comparison bears repeating because it suggests that branch banking alone would go far in rendering the U.S. banking system immune to financial crises.[4] As branching laws are liberalized the U.S. banking system will be progressively strengthened, and its reliance upon a lender of last resort will be correspondingly reduced.

A defense of restrictions on branching is that they prevent the banking industry from becoming overly concentrated and uncompetitive. This view misconstrues both the likely effects of full interstate branching and the meaning of competition. In O'Driscoll's estimate (1988, p. 673) without branching restrictions the United States might still have more than 4,000 independent banking firms. But even four hundred banks with far-reaching branch networks would be a more than adequate guarantee against collusive behavior. More importantly, branch banks could really compete with one another by freely entering any locality. In contrast the present system is one of numerous, local monopolies. Competition is not just a matter of numbers.

In addition to exposing banks to risk, anti-branching restrictions have weakened them in other, less direct ways. During the 19th century they encouraged the growth and "tiering" or "pyramiding" of interbank deposits, with country banks remitting surplus funds to a dozen or more "reserve city" banks, and the latter sending funds to banks in New York City (Smith 1936, pp. 138–40). By this process the same dollar of high-powered money could be reckoned as part of several banks' reserves—a practice formally sanctioned by national

[3]Canada turned to central banking in 1935, for reasons that had little to do with securing financial stability. See Bordo and Redish (1986).

[4]Relative freedom of note issue and activity diversification also contributed to the greater strength of Canadian banking.

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banking law. This—along with legal-restrictions on note issue—contributed greatly to the severity of the great money panics of 1873, 1884, 1893, and 1907 by causing illiquidity in any part of the country to have adverse repercussions everywhere else. Anti-branching laws have also stood in the way of bank mergers and acquisitions—the least disruptive way of dealing with troubled banks. Finally, anti-branching laws have indirectly weakened the financial system by providing a rationale for other legal restrictions—patchwork remedies that the supervisory authorities have embraced as a substitute for needed structural reform, but that have ultimately served to further weaken the banking system.

Activity Restrictions. Just as anti-branching laws have subjected banks to increased risks by limiting their geographical diversification, other legal restrictions have done the same by limiting activity-diversification. Laws like the Glass-Steagall Act of 1933—designed to prevent banks from holding high-risk, high-return assets—actually serve (in an otherwise deregulated setting) to *increase* the probability of bank failures.[5] As Blair and Heggestad explain (1978, p. 92), even the taking on of intrinsically riskier assets by a bank reduces the overall variance of returns on the bank's portfolio if fluctuations in the earnings of the riskier assets are negatively correlated to fluctuations in the earnings of the less-risky assets. Empirical evidence suggests that this has indeed been the case in recent years (Litan 1987, pp. 84–96). It appears to have been true, moreover, between 1930 and 1933. As Shughart (1988, pp. 600–602) relates, despite all the rhetoric used to justify Glass-Steagall "securities affiliates were identified as a proximate cause of failure only in the case of the Bank of the United States," which was also guilty of fraud; in general "the presence of an affiliate appears to have reduced the probability of bank failure." The real motive behind Glass-Steagall, according to Shughart, was not to increase bank safety but rather to shield both banks and investment companies from the rigors of competition.

Other legal restrictions have increased the riskiness of bank portfolios, not by restricting the investments banks can engage in, but by actually *requiring* them to make potentially risky investments. A relatively recent instance of this is the Community Reinvestment Act of 1977. Before the Civil War, so-called "free-banking" laws in numerous states forced banks to invest in state and local bonds as

[5]That, at least, would certainly be true in the absence of deposit insurance, which by subsidizing risk taking may encourage banks to diversify in ways that would increase their overall exposure to risk (Litan 1987, pp. 84, 103–4). This implies that deposit insurance itself may have to be reformed or repealed *before* all portfolio restrictions (except those that concern clear conflicts of interest) can safely be lifted.

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collateral for their note-issues; in several states the required bonds proved to be very poor investments, becoming the major cause of free-bank failures (Rolnick and Weber 1984). Nor have banks been the only financial institutions to suffer from such requirements: prior to 1981 most thrifts were restricted to mortgage lending, which overexposed them to declining real estate prices.

One especially desirable activity banks might undertake in the absence of Glass-Steagall type restrictions would be to compete with investment companies in offering checkable mutual fund accounts. As Goodhart (1987) explains, because the nominal value of mutual funds varies with the value of their underlying assets, they are (unlike bank deposit accounts) invulnerable to runs. Moreover, bank mutual fund accounts could offer distinct advantages over similar accounts offered by other firms, because bank customers could conveniently make transfers to and from their mutual fund accounts to other accounts offering different advantages (e.g., absence of minimum balance or minimum check-size requirements). Finally, were mutual fund accounts to displace deposits to any substantial degree, the burden borne by deposit-insurance schemes would be proportionately lightened, and the prospects for reforming deposit insurance—by replacing it with private insurance or by repealing it altogether—would be greatly improved.

Deposit-Rate Ceilings. Still other legal restrictions that have served to weaken banks and to create an artificial need for a lender of last resort are restrictions on deposit and loan rates of interest. Deposit-rate ceilings, also introduced by the Banking Act of 1933 (and extended by the Banking Act of 1935) were ostensibly aimed at guarding against banks bidding for customers by offering high rates on deposits, offsetting the higher cost of funds by engaging in unsafe investments with high-gross yields. But studies in recent decades, summarized in Mingo (1981), have challenged this rationale by showing a lack of evidence of any correlation between rates paid on deposits and the quality of a bank's assets. Furthermore if a correlation did exist, it could be because high-yielding assets lead to high deposit rates (as standard economic analysis would suggest) rather than the other way around. A more likely reason for imposing rate ceilings on banks was to preserve the market position of "thrifts," which had evolved to specialize in home finance—a market position that was itself a result of prior restrictions on mortgage lending by national banks (removed in 1914 by the Federal Reserve Act). Rate ceilings also served to prop up banks with a lucrative price-fixing scheme.

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Rather than reduce banks' likelihood of failure, deposit-rate ceilings have tended to have just the opposite effect by limiting their ability to bid for funds when threatened by a disintermediation or other liquidity crisis. This was dramatically evident in the 1960s, when banks and later thrifts were racked by a series of disintermediation crises. The trouble started in October 1959, when (as a result of slowly mounting inflation) Treasury bill rates rose to 5 percent—well above the 3 percent Regulation Q limits on time deposits. Banks then faced a disintermediation crisis that was a portent of further troubles to come. As inflation and short-term money rates continued to rise (in part as a result of the escalating costs of the Vietnam War), the Fed found it necessary to allow one-step increases in rate ceilings on CDs for every year from 1962 to 1965 to avoid a recurrence of the 1959 crisis. This policy left the thrifts stranded, however—their own rates being fixed at 4 percent (Wojnilower 1980, pp. 286–87). At last to protect the thrifts, the Fed in 1966 refused to lift bank deposit-rate ceilings again, while simultaneously putting the brakes on monetary expansion. The result was an even more severe bank "credit crunch." Finally in August the Fed reversed its monetary policy again, this time to "rescue" the banks *from its own misguided policies.*

The banking crisis of 1966—the first "financial crisis" (to adopt the conventional, hyperbolic vernacular) in the United States since the Great Depression—was a direct consequence of Regulation Q restrictions combined with erratic Fed monetary policy. This was also true of later disintermediation crises, including the thrift crisis of 1969. If rate restrictions had been absent then as they are today, these crises would not have happened and there would not have been any need for "last resort" lending by the Fed.

Deposit Insurance. The absence of crises is, however, not necessarily evidence of a strong banking system: Weak and even insolvent banks (and thrifts) can also be propped up by subsidies, which tend to encourage them to take on added risks causing them, more often than not, to become even weaker and more insolvent. Deposit insurance and central bank loans have increasingly had these effects in recent years, particularly in the thrift industry where hundreds of bankrupt "zombie institutions" have been kept afloat at taxpayers' expense instead of being allowed to succumb to the Darwinian forces of the market. (Thrifts received their first direct Federal Reserve support on February 23rd, 1989.)

The ill-effects of government deposit insurance are, as is well known, due to its lack of risk-adjusted premiums. This leads to moral hazard whereby the insured firms pursue risks that they would not

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pursue in an uninsured state.[6] Depositors, in turn, no longer feel any need to be concerned about the safety of particular depository institutions, and are tempted to supply funds to wherever rates are highest. According to McCulloch (1986, p. 82), thanks to federal deposit insurance

> banks and thrifts have engaged with impunity in all manner of excessive risks—foreign exchange speculation (Franklin National), speculative energy loans (Penn Square), inadequately investigated loans (Continental Illinois), insider loans (the Butcher banks), uncollectable Third World loans (almost every top ten bank) and so forth.

According to Short and Gunther (1988) the present weakness of Texas banks and thrifts is a result, not just of unit banking, but also of "policies that have removed incentives for depositors to reallocate their funds." Encouraged by the FDIC's decision to insure even large deposits at First City Bankcorp and at the First Republic Bank Corporation, depositors actually shifted funds into those troubled firms and out of stronger banks and thrifts. In the same way insurance has been helping bad banks to drive out good banks throughout the United States. As long as such subsidies continued (together with mergers) to provide de facto full coverage, the effects of this progressive financial weakening were not apparent; but with mounting bank and thrift losses, with insurance funds themselves facing bankruptcy, and with mergers subject to increased scrutiny, the cat has been let out of the bag. The present thrift and LDC-debt crises are poignant proof of this weakening. According to Kane (1985, pp. 120–21) the latter crisis is fundamentally due to "the turning on and off of deposit insurance subsidies." To the extent that the Fed is called upon to resolve these crises by acting as a lender of last resort (i.e., by forcing consumers at large to bear the cost through a weakened dollar), it will be addressing, not market failure, but the failure of legal restrictions on banks and thrifts including restrictions it itself has imposed.

The present deposit-insurance crisis suggests that the argument, popularized by Friedman (1960, pp. 37–38), that deposit insurance makes a lender of last resort unnecessary can be the opposite of the truth. For as long as insurance is underpriced, it makes depository institutions more rather than less failure prone. As failures increase, the insurance funds themselves are threatened by bankruptcy. A lender of last resort is then needed to bail out the funds directly or

[6]Thus the problems Glass-Steagall and Regulation Q were supposed to prevent *can* exist in the presence of federal deposit insurance.

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to bail out and subsidize mergers of insolvent banks. Not to do so could lead to panic, as many depositors have no reason to trust their banks apart from the guarantees that insurance provides. The 1985 Ohio and Maryland S&L crisis bears this out quite clearly.

The Lender of Last Resort Itself. By the same token, though, the Fed is also one of its own worst enemies (I am tempted to say one of its own best excuses), because it also encourages banks to take on excessive risks, leading to trouble. That lenders of last resort can also be a source of moral hazard is, of course, recognized even by their most ardent supporters (e.g., Kindleberger 1984, p. 280). According to Garcia and Plautz (1988, p. 112),

> Lender-of-last-resort assistance can be viewed as a form of subsidized government intervention. If potential recipients interpret such assistance to mean that the central bank would step in to bail out any institution in difficulty, the available assistance could encourage (even subsidize) additional risk-taking among institutions with lender-of-last-resort access.

This problem, which has been called "The Bagehot Problem" (after Walter Bagehot, who drew attention to it in *Lombard Street)* would be avoided if the lender of last resort followed Bagehot's advice—in offering support only to solvent institutions at penalty rates. But Bagehot's advice is violated by most central banks in practice, as the rescue of Franklin National glaringly demonstrated (see Garcia and Plautz, 1988, pp. 217–28).

The "Contagion Effect" Myth

The preceding review suggests that legal restrictions have played a role in many, though by no means all, bank failures. Obviously failures—including failures due to outright fraud—would also occur under laissez faire. Such failures should not have to be regretted, though. On the contrary, in banking as in other industries, failures are needed to discipline and weed out bad managers; furthermore, if they lead to takeovers (or if banks are well capitalized), *isolated* failures need not cause bank customers to suffer large losses. The great fear of failure that affects regulatory authorities today reflects the widespread belief that failures, instead of being limited to poorly managed banks, will have undesirable "third-party" effects, causing panic to spread indiscriminately to other banks in the system.

Indeed, a lender of last resort is needed only when such "contagion, spillover, or domino effects" threaten "the stability of the entire monetary system" (Humphrey and Keleher 1984, p. 278), for otherwise runs and failures at one or several depository institutions would result in a transfer of funds to others, strengthening rather than weak-

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ening the latter. Only if panic becomes general—if depositors lose confidence in the entire banking *system*—will depositors switch to holding high-powered money, weakening all depository institutions in the process.[7] Thus a crucial (though often implicit) assumption in the pro-lender-of-last-resort literature is, to quote Solow (1982, p. 238), that "any bank failure diminishes confidence in the whole system," leaving no private banks in a position to stem a panic.

This is a very strong assumption, especially in view of the paucity of support one finds for it in history. In U.S. experience Rolnick and Weber (1986) found no evidence of any contagion effects from bank runs during the "free-banking" era (1837–60). Reviewing the national banking era (1863–1913), Kaufman (1988, p. 16) found only limited evidence of contagions in the panics of 1878, 1893, and 1908; and the evidence is weak except for 1893. Even during the "Great Contraction" of 1930–33—the episode from which contemporary authorities still seem to draw all of their conclusions—contagion effects appear to have been limited regionally until late 1932; prior to 1932, moreover, runs were confined for the most part to banks suffering from pre-run insolvency or to banks affiliated with insolvent firms (Wicker 1980). Even the failure of the Bank of the United States in December 1930 did not provoke any panic runs in New York City, according to Wicker (p. 580). Finally, in their study of more recent experience, Aharony and Swary (1983) found no evidence of any contagion effect (measured by a fall in bank stock prices) following the failures of the United States National Bank of San Diego or the Hamilton National Bank of Chattanooga; they did find evidence of a very limited contagion (involving banks known to be heavily involved in the foreign-exchange market) stemming from the failure of Franklin National. Their overall conclusion (p. 321) was that the "failure of a dishonestly run banking institution, even a large one, need not cause panic and loss of public confidence in the integrity of the banking system as a whole."[8]

Still more recently the failure of Continental Illinois in 1984 also led to a slight and short-lived stock-price contagion; but it (like all previous, recent failures of large banks) did not lead to any net-withdrawal of high-powered money by noninsured depositors

[7]This contradicts a statement in Guttentag and Herring (1983, p. 6). Depositors may also switch into high-powered money despite their continuing confidence in banks, because their payments plans demand greater use of hand-to-hand money. As will be shown below, such behavior would not pose any threat to a fully deregulated banking system.

[8]Goodhart (1987, p. 85) reaches the same conclusion with respect to recent runs in the United Kingdom.

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(Benston et al. 1986, p. 66). The run on Home State Savings and Loan in Ohio in 1985 did involve some withdrawals of currency and did spread to other Ohio S&Ls covered by the same insurance scheme (as well as to privately insured S&Ls there and in Maryland); however, it also did not involve any general panic but only a limited panic based upon depositors' (justified) concern over the condition of their accounts' insurers together with uncertainty as to the Fed's likely response.

In Canada also, bank runs usually do not seem to have been contagious. According to Schuler (1988, pp. 37, 54), the only exceptions have been the panic on Prince Edward Island in 1881, which spread from the insolvent Bank of Prince Edward Island to other local banks owed money by it, and runs in 1985 on several small western banks following the failures of the Canadian Commercial and Northland banks.[9] In neither incident did runs affect any of Canada's nationwide banks. "[I]mmuity to runs," Schuler concludes, "apparently depends greatly on bank size."

All of this evidence adds up to one crucial fact: that the public generally knows more about the state of the banking system than the supervisory authorities give it credit for knowing. When certain banks or groups of banks get into trouble (or are suspected with good reason of being in trouble), depositors transfer funds from those banks into other, safer banks. They do not lose confidence in the banking system as a whole. This suggests that last resort assistance by a central bank, particularly to institutions suffering from pre-run insolvency, is unnecessary except on *very* rare occasions.

What about those "rare occasions"? Don't they supply a sufficient rationale for having a lender of last resort? The answer depends on what *causes* have given rise to contagion effects. One possible (and popular) explanation can be readily dismissed: This is the "random" or "bubble" theory of panics as entertained by Kindleberger (1978), Bryant (1981), Diamond and Dybvig (1983), Waldo (1985), and many others. According to this theory, panics need not be based upon any real shock with predictable, adverse effects on bank earnings, but may occur even in response to intrinsically irrelevant events, such as sunspots. All of the evidence reviewed above, as well as the findings of Gorton (1986), disputes this view, supporting instead the alternative hypothesis that panics are based on prior, real shocks with predictable adverse repercussions on bank earnings.

[9]O'Driscoll (1988, p. 672) observes that these failed banks "were more like the typical U.S. rather than the typical Canadian bank. Neither . . . was widely branched, and they were specialized energy banks."

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Under what circumstances, then, might such shocks expose an entire banking system to contagious runs, as they seem to have done in 1932 and (perhaps) in previous crises? One possible circumstance is when banks are involved in one another's assets through correspondent relationships. As Garcia and Plautz (1988, p. 19) point out, the failure of a correspondent "can bring down a chain of its respondent banks." This was one justification given by the Fed for rescuing Continental Illinois. But the depth and breadth of correspondent relationships in U.S. banking is itself, as was explained earlier, a consequence of unit banking, which should become less and less important as branching restrictions are lifted. Even as matters stand, moreover, correspondent relationships are hardly extensive enough to be likely to cause a flight to currency.

Another cause of contagion effects—one that also played a crucial role in the 1932 panic—is resort to bank holidays. As Benston et al. explain (1986, p. 52), fears of widespread panic that inspire government officials to declare a bank holiday can easily become "a self-fulfilling prophesy": a holiday freezes up part of the money supply, reducing incomes generally and encouraging withdrawals by clients of otherwise solvent banks that fear the holiday will spread. In this way Nevada's bank holiday on October 1932 had its own "domino effect," culminating (with the help of depositors' apprehensions concerning FDR's fidelity to the gold standard) in the national bank holiday in March 1933. In the same way, Maryland depositors were inspired to run on their S&Ls in part because they feared Maryland would follow Ohio's example by declaring a holiday.

Resort to bank holidays is particularly unfortunate in that it is a substitute for a more-effective but less-dangerous alternative: This is a "restriction" or "suspension" of high-powered money payments of the kind resorted to by private banks (with the government's acquiescence) in the pre–Federal Reserve era, and that Herbert Hoover was prevented from implementing in February 1933 owing to Roosevelt's refusal to cooperate. Because a restriction allows banks to remain open to conduct lending operations and also to receive deposits and settle accounts with one another (or even, perhaps, with banks not affected by the restriction), it constitutes less of a "freeze" on the money supply and hence less of a reason for depositors at other banks to panic. Later I will argue that such suspensions are also consistent with maximizing banks' earnings and consumers' utility, so that they could play a role even in a fully deregulated banking system.

A third likely cause of a banking contagion is a macroeconomic shock so severe as to place all or most banks in danger of insolvency

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despite their best efforts to diversify. All that needs to be said about this is that its most likely cause would be irresponsible behavior by a central bank.[10] Thus it hardly constitutes a good reason for giving central banks extra leeway (including the issue of inconvertible money) to allow them to serve as lenders of last resort.

A final and most important potential cause of contagion effects in response to real shocks is an "information externality." Such an externality may be present whenever bank depositors are unable to inform themselves of the riskiness of their own banks, and so are forced to generalize from the troubles experienced by others. To the extent that such externalities are present, the evidence reviewed above suggests that their effects are limited: Depositors do seem to know *something* about their banks, so that, at worst, trouble spreads from insolvent banks to others that are, if not insolvent themselves, in some nontrivial way "similar" to the insolvent banks. Moreover, it will be argued below that information externalities are themselves yet another by-product of legal restrictions, which would be absent (or much less severe) under laissez faire.

Market Support Mechanisms

Private Last-Resort Lending. Another implicit assumption in the lender-of-last-resort literature is that, if a central bank does not avert a financial crisis, private agents will not, either: The rendering of aid to troubled banks to avoid a systemic banking collapse is regarded as a "public good" (e.g., Solow 1982, p. 241ff.). Here again the assumption has little foundation in fact: Although bank runs and failures may have third-party effects, these do not necessarily imply market failure. As long as some private banks are not threatened by runs (and are indeed receiving money withdrawn from other institutions), it will be in their interest to aid their solvent but illiquid rivals. Nor is there any basis for the claim, made by Guttentag and Herring (1983, p. 5) and implied elsewhere, that a government lender of last resort "may have better information than the private markets . . . and may know that [a] bank is solvent when the private market does not."

In fact private providers of last-resort assistance are much more likely than any central bank to conform to the "classical" recipe of lending only to solvent institutions at penalty rates, in part because doing so is entirely consistent with profit-maximization. As will be seen below, by refusing last-resort assistance central banks in the past have managed to reinforce their own privileged status—a status

[10]Reasons for this are given below.

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that rendered them peculiarly immune to confidence externalities. More recently, on the other hand, central banks have been inclined to extend aid at subsidy rates and often to insolvent institutions (Garcia and Plautz 1988, p. 54; Sprague 1986, *passim*). In doing so they in effect act as lenders, not of last, but of first resort. Such behavior allows central banks to create an exaggerated impression of their importance. It serves, at the same time, to further weaken the banking system by creating another "moral hazard" and by discouraging the development of private arrangements for responding to crises.

Central-bank aid to *insolvent* institutions is especially harmful: Last-resort aid fulfills its purpose when it serves to signal the public that an institution is indeed viable. Aid to insolvent banks undermines this purpose, as the public discovers that a bank—even though it has received assistance—may still fail. Thus an offer of last-resort aid may no longer suffice to end a run and may not suffice even if the stricken institution really is solvent, because the offer of aid no longer serves to convince a skeptical public that this is indeed the case. For this reason the Fed alone was unable to end runs at First Pennsylvania Bank in 1980 and at Continental Illinois in 1984. As Garcia and Plautz explain (1988, p. 168), private assistance had to be included in the rescue packages to those banks "to demonstrate that those with their own monies at risk were confident that the crises would be resolved without losses being incurred by uninsured depositors."

Although the rendering of emergency assistance by private banks has been quite common throughout history, legal restrictions have hampered it in numerous ways, all of which generate an artificial need for central-bank assistance. The fact that central banks often underbid would-be private rescuers has already been mentioned. Branching restrictions are also to blame, for by encouraging the proliferation of small banks, such restrictions—in addition to making banks more failure prone to begin with—also hinder the assembly of large, wholly private rescue packages. Even an overnight loan backed by plenty of collateral, if very large (like the Fed's 23-billion dollar loan to the Bank of New York in 1985) poses a tremendous, if not insuperable, challenge to numerous small banks that could easily be met by a group of larger banks acting in concert.

Takeovers and Mergers. Bank regulatory authorities generally agree that the best way to dispose of an insolvent bank or thrift is not to liquidate it but, if possible, to have it taken over by a solvent bank or bank holding company. Yet although they are pleased to take credit for frequently arranging such takeovers, the fact is that legal restrictions and policies sanctioned by the authorities themselves

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are the main impediments to takeovers, which could otherwise proceed in such a way as to permit greatly reduced reliance upon the central bank as a lender of last resort. Kareken (1986, p. 11) sums up the situation nicely:

> If a bank is, for instance, constrained to have no branches, then neither can it acquire another bank and . . . keep the acquired bank in existence. . . . Bank acquisitions and mergers are, then, to an extent limited by state branching restrictions or, more fundamentally, by the McFadden Act. But that is not all. Under present-day federal bank regulatory policy, no bank with FDIC-insured balances can go ahead with an acquisition or merger until it has gotten the approval of the appropriate federal bank regulatory agency, whether the OCC, the FDIC, or the Federal Reserve Board (FRB), all of which are, as it were, special antitrust agencies.[11]

As if this were not enough, the Bank Merger Act of 1966 allows the Department of Justice to challenge any bank acquisition or merger approved by the above listed agencies (Kareken 1986, p. 12), while Federal Reserve restrictions make bank holding company acquisitions of thrifts unattractive. All of these impediments to takeovers reflect the authorities' "bigness paranoia"—their obsession with concentration ratios in banking—which prevails despite the fact that banking in the United States is a long way from being as concentrated as banking elsewhere. Somewhat ironically, the shortage of big banks in the United States is itself a barrier to takeovers, because bigger banks can much more readily absorb the business of smaller banks than other small banks can.

Another unfortunate aspect of present policy is that, until very recently, it has permitted takeovers only of insolvent or nearly insolvent banks and thrifts. This clearly lowers the odds of finding eligible bidders for a bank or, alternatively, makes it necessary for the authorities to sweeten the pot by assuming some of the bad assets of a failed institution or by providing subsidized "leverage." Indeed, Kane (1985, p. 11) reports that, for large banks especially, the regulatory authorities "ordinarily make a tenacious effort through subsidizing lending to keep troubled institutions afloat well past the point of market value insolvency" using "cosmetic accounting" to hide the practice. This policy of forbearance is the equivalent of administering a "poison pill" to failing institutions in its efficacy in discouraging potential acquirers. It also encourages insolvent firms to "go for

[11]Recent changes in the law, including the Garn-St. Germain Act of 1982, provide for only limited relaxation of branching restrictions in the absence of similar reforms of state laws.

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broke"—taking on risky investments in a last-ditch effort to stay alive.

The very fact that would-be takeovers or mergers must be disclosed to the authorities before they can proceed makes voluntary (i.e., hostile but non-shotgun) takeovers of poorly managed banks less likely. As Jensen explains (1988, pp. 44–45), prior disclosure of a planned takeover of a publicly traded firm allows stockholders in the target firm to bid up the price of its stock to equal the full discounted value of any expected gain in net earnings from the takeover. Thus nothing is left for the would-be acquirer, which (unless offered a last-minute subsidy) has every incentive to bow out.

In sum, the elimination of branch restrictions and a laissez-faire policy toward mergers and takeovers would have allowed many of today's problem banks and thrifts to have been quietly absorbed by sound institutions well before their net worth became negative, and would have done so without need for "last-resort" subsidies made at taxpayers' expense.

The Role of Currency Monopoly

So far I have argued that restrictions on branch banking, portfolio diversification, interest rates, and mergers, together with mispriced deposit insurance and "emergency" loans, have contributed to the fragility of the U.S. banking system, making it crisis prone and generating an artificial need for a lender of last resort. Yet this account seriously understates the case against having a central bank functioning as a lender of last resort, because it fails to reveal how *the very presence of even a well-behaved central bank is itself a fundamental cause of financial fragility*. This is so because central banking entails a monopoly in the supply of hand-to-hand currency, which has historically been a particularly destructive legal restriction on private banking as well as a crucial cause of monetary instability. Rather than being merely a *means* which allows central banks to act as lenders of last resort (Humphrey and Keleher 1984, p. 176), currency monopoly was the original *raison d'être* of central banks and a cause of the troubles central banks were called upon to correct only as an afterthought.

Currency monopoly directly contributes to financial fragility in three ways: (1) by preventing private banks from independently accommodating changes in the public's relative demand for currency; (2) by precluding a secondary market for bank liabilities; and (3) by creating a new and unstable form of high-powered money.

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Currency Demand

A major part of the so-called "inheritant instability" of contemporary fractional-reserve banking rests upon the fact that private banks cannot issue notes. An increase in the public's demand for currency relative to its demand for deposit balances under such circumstances must lead to withdrawals of high-powered money from banks' reserves. Unless the withdrawals are somehow neutralized, they will provoke a multiplicative contraction of deposits.[12] Insofar as an increase in the relative demand for currency does not reflect a loss of confidence in banks (as is typically the case), then redeemable bank notes (which like deposits are a claim against some ultimate money of redemption) can be perfectly adequate in satisfying it. Of course, as Rockoff (1986, p. 629) points out, freedom of note issue cannot prevent a crisis if deposit holders do lose confidence in the banking system and therefore choose to withdraw the ultimate money of redemption (an extreme possibility to be dealt with by separate means, discussed below). But restrictions on note issue only serve to increase the likelihood of this happening by causing even non-panic-driven increases in currency demand to place a strain on the banking system, thereby helping to inspire a loss of confidence.

History is littered with instances that bear out these claims, a number of which are described in Selgin (1988, chap. 8). Perhaps the most notorious were the great "currency shortages" of 1893 and 1907 in the United States, which provided a rationale for the establishment of the Federal Reserve system. Although national banks were legally permitted to issue notes, they were hampered after 1882 by the growing scarcity of government securities, required by the National Banking Act as collateral for note issues. A seasonal stringency of credit emerged each year with the autumnal increase in demand for currency "to move the crops." On the aforementioned dates this stringency degenerated into full-scale panic. Private banks, clearinghouses, and other firms issued millions of dollars worth of "currency substitutes" in partly successful efforts to stem the crises. Most of this ersatz currency was probably illegal, but its successful use helped to reveal the extent to which the crises were an avoidable consequence of legal restrictions on note issue. Here again Canada offers an interesting counterexample, for what were "crises" in America took the form there of mere increases in the outstanding stock of private

[12]Even Lloyd Mints (1950, p. 186)—one of the original proponents of this "inherent instability" thesis—admits that it "is due in part to a wholly unnecessary legal restriction," namely, restrictions against note issue. He goes on to say that, to be consistent, "the defenders of fractional-reserve banking should propose [to give banks] the privilege of note issue with the same required reserve ratio for notes and deposits" (p. 188).

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bank notes, some of which crossed the border to provide relief to Americans suffering from a shortage of exchange media.

Another example is the role of the Fed's monopoly on note issue in helping to bring on the "Great Contraction" of 1930–33. As income falls, the demand for hand-to-hand currency increases relative to the demand for deposits independently of any loss of confidence in the banking system. Thus some of the post-1929 withdrawals of high-powered money which placed a strain on many banks might have been avoided had the banks been able to issue notes as well as create deposits.

A Secondary Note Market

Previously I observed that a contagion effect could take hold in a system of unregulated deposit banks as the result of an "information externality." Because depositors lack knowledge of bank-specific risks, any real shock known to have rendered one bank insolvent may be regarded as a likely cause of serious damage to others. Thus bad news concerning one bank spills over to apparently similar banks.

It turns out that this potential cause of a banking contagion is another consequence of legal restrictions on private, competitive note issue. As Gorton (1987) explains, prices of financial assets for which secondary markets exist will—according to the efficient markets hypothesis—tend to reflect their relative riskiness. Thus a secondary market for bank money can, in theory, be a reliable source of information concerning bank-specific risks, which could serve to limit bank runs to truly insolvent firms. However, the secondary market for checkable deposits is too "thin" to be efficient, because checks drawn by different persons for the same amount and from the same bank are distinct assets. Therefore, freedom of note issue is necessary if market price signals are to be relied upon to stamp out a contagion.

A secondary bank-note market is typically portrayed as involving professional non-bank-note "brokers" as well as bank-note "reporters"—weekly publications with information on note discounts. If brokers do not request any risk-related discount (beyond transaction costs) to redeem a bank's notes, holders of those notes can rest assured that the bank is solvent and will not have any incentive to "monitor" its solvency by staging a run on it. On the other hand, holders of notes trading at a discount do not need to run, either, but can "walk" to a broker who charges them for assuming the risk that the notes' issuers may fail.

Though secondary note markets did indeed function this way in the United States and elsewhere in the early 19th century and

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before,[13] the tendency in a fully unregulated system is for brokers and bank-note reporters to give way to banks with nationwide branch networks accepting one another's notes directly or through clearinghouses at par.[14] It has been suggested (e.g., Gorton 1987, p. 3) that this tendency also implies the abandonment of a secondary note market and the return of an information-externality problem. The truth is rather that there is still a "virtual" secondary note market in which banks and clearinghouse associations rather than brokers become "market makers" and where notes tend to be priced either at par or at zero (the latter being the case where a note is refused in payments to banks other than its issuer). The "binary" system of note pricing in this "virtual" market is sufficient to avoid a contagion effect. Noteholders have reason to stage a run only on banks whose notes are not being accepted at par by other banks. Because notes unlike checks are fungible, a person who deposits a note with a rival bank need have no fear that the bank will refuse to credit his or her account after (unsuccessfully) trying to redeem the note. Thus a bank's acceptance of a rival's note is, unlike its acceptance of a check, a definite token of its confidence in the rival's solvency. It is only when par acceptance of notes by rival banks is *required by statute* (as it was, for example, under the National Banking Act of 1864) instead of being voluntary that it ceases to be a reliable source of information about bank-specific risk. With freedom of note issue and exchange in *any* of its likely forms, a bank information externality would be extremely unlikely.[15]

High-Powered Money

It is widely believed that financial crises are most likely to occur in periods of tight money following longer periods of monetary ease (Kindleberger 1978; Minsky 1977, 1982; and many theorists of the "Austrian" school). Experience seems to confirm this view (Garcia and Plautz 1988, p. 7), which suggests yet another reason for viewing central banking and currency monopoly as a cause of, rather than a cure for, financial instability. The reason is that a currency monopoly

[13]On the functioning of the secondary note market in the United States prior to 1845, see Knodell (1988).

[14]For an account of how and why this happens, see Selgin (1988, chap. 2).

[15]That deposits would still lack a distinct secondary market (or virtual secondary market) of their own does not matter if they are backed by the same general assets as notes are. This has always been the case for unregulated banks, though it was not true for the banks of the so-called "free-banking" era in the United States or for national banks afterwards. For this and other reasons, these banks were subject to information externalities despite being able to issue notes. See Selgin (1988, pp. 138–39).

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makes possible much more erratic fluctuations in the money stock than can occur in banking systems where currency is issued competitively in the form of redeemable notes. When note issue is monopolized, the liabilities of the privileged bank of issue inevitably become high-powered money even though they themselves may still be redeemable in specie.[16] This high-powered money replaces specie as the principal bank reserve-medium, the consequence being that the bank of issue is relieved from suffering any adverse clearings when it overissues. Furthermore, any expansion or contraction of the privileged bank's liabilities leads to a multiple expansion or contraction of deposits at unprivileged banks, to be checked only when international specie-flows force the bank of issue to alter its course. Obviously if a central bank suspends specie payments, or if a permanent fiat-money system is established (something relatively easy to do once notes are issued monopolistically), the privileged bank's power to inflate or deflate will, in principal at least, be unlimited.

A central bank's power to unilaterally expand or contract a nation's money stock must be compared to the relatively limited potential for similar expansion or contraction in a free-banking system. Elsewhere (Selgin 1988, chaps. 3–6) I explain in detail why free banks, unlike a central bank, cannot unilaterally or collectively affect a change in the price level or in nominal rates of interest. For this reason, and also unlike a central bank, they cannot unilaterally deplete a nation's gold stock by overissuing. This makes them incapable of creating the circumstance most frequently to blame for both American and European financial crises under the gold standard: a rising domestic price level (with or without a speculative "mania") combined with a shrinking stock of specie.[17] Needless to say, free banks would also be incapable of the hyperinflations and secular stop-and-go inflations that distinguish fiat-money regimes and are the most important cause of financial crises in more recent history.

To a remarkable extent, the literature on financial crises has turned a blind eye toward these fundamental truths. Thus Kindleberger (1978, p. 52) lists the growth of private banking and financial instruments, gold discoveries, and (p. 17) the ability of competitive banks to

[16]See Selgin (1988, pp. 48–49).

[17]Humphrey and Keleher observe (1984, p. 279): "Crisis situations involving the LLR [lender of last resort] frequently followed excessive credit expansions. Such credit expansions often were large and prolonged enough to produce outflows of specie and to foster doubts about the ability of commercial banks to redeem their paper in gold."

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"stretch" their reserves as causes of excessive monetary expansion,[18] while treating privileged (central) banks as sources of stability:

> Central banking arose to impose control on the instability of credit. The development of central banking from private banking, which is concerned to make money, is a remarkable achievement. By 1825, division of labor had been agreed upon: private bankers of London and the provinces financed the boom, the Bank of England financed the crisis [Kindleberger 1978, p. 77].

This is a truly incredible interpretation of the history of banking in England. It would certainly have come as a surprise to the directors of the Bank of England, both in 1825 and for many years after, to learn that they, unlike private bankers, were not "concerned to make money" or indeed that their bank's privileged status was awarded to it so that it could "impose control on the instability of credit." They would probably have been inclined to think that the whole point of the Bank's possessing the powers and privileges it possessed was precisely to enable it "to make money" and, more importantly, to enable it to make money more easily than other banks could in return for its sharing some of the money with the government. As regards the alleged "division of labor" in 1825, we have already seen how it is theoretically suspect. Moreover in voicing a view made famous by the Bank directors during the Restriction, Kindleberger ought to know that he is standing on thin ice. Just as some participants in the bullionist controversy blamed the Bank of England rather than the country banks for depreciation of the pound during the Restriction (White 1984, pp. 55–58), later writers including Parnell and Mushet (cited in White, p. 63) laid blame for the 1825 crisis squarely on the shoulders of the Bank of England and its overissues of 1824–25.[19] Their view is also upheld by more recent authorities including Nevin and Davis (1970, p. 43), who note that the country banks had been *contracting* their note issues and accumulating reserves locally and in London after 1819 in anticipation of resumption. Their policy changed after 1822, when the Bank of England—encouraged by a last-minute decision of the government to allow a continuance of country small-note circulation until 1833 (Thomas 1934, p. 42)—imprudently decided to employ the large reserves it had gained from the countryside by reducing its lending rate to 4 percent and extending the maturity of eligible bills from 65 to 95 days. "The

[18]For critical remarks on these alleged causes of monetary overexpansion, see Selgin (1988, chap. 6 and pp. 129–33).

[19]It is worth noting that not a single Scottish bank failed or felt the need to apply to the Bank of England for assistance during the 1825 crisis. See White (1984, p. 47).

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country banks," according to Nevin and Davis "could hardly do other than follow these changes in the credit situation" by expanding their own issues.

For some later episodes (when the "division of labor" should have been even more firmly established) the evidence against the Bank is still more conclusive. A recent case in point was the "fringe bank" crisis of 1973–74. According to Reid (1982) that crisis was based on a boom willfully engineered (with the Bank of England's help) by the Heath government in its "dash for growth." Nor has the Bank of England been the only central bank to be guilty of errors of commission (and not merely of omission) in modern times. As Garcia and Plautz observe (1988, p. 111), the Fed on several occasions has set "the stage for real and financial sector insolvencies and liquidity crises." Excessive expansion of money made possible by the existence of central banks exposed financial institutions to wider and more frequent swings in nominal interest rates than could or would have occurred otherwise. An example of this cited by Kindleberger himself in a recent article was the Fed's attempt to assist Nixon's 1972 reelection by expanding the money stock in the hope of lowering interest rates (Kindleberger 1988, p. 176). To suggest as Kindleberger does elsewhere that such behavior contradicts the true purpose central banks "arose" to fulfill is to ignore their historical origins entirely. It is like suggesting that lions "arose" in order to perform circus acts. The real surprise is not that central banks inflate but that they have been trained occasionally *not* to do so.

To conclude: Monopoly in currency supply is more a cause of, than a cure for, financial fragility. This fact helps to account for the stability of past, decentralized banking systems such as those of Scotland (White 1984), Canada (Schuler 1988), Sweden (Jonung 1985), and Switzerland (Weber 1988) in the 19th century—a success that must appear paradoxical to those who regard fractional-reserve banking as inherently unstable and in need of a lender of last resort.[20]

The Political Economy of Central-Bank "Hierarchy"

There is yet another, more subtle way in which restrictions on private currency issue have contributed to the perceived need for a lender of last resort. This is by indirectly fostering the view that private banking is *naturally* hegemonic or "hierarchical" (Gorton 1987, Gorton and Mullineaux 1987, Goodhart 1988). This view sug-

[20]There are, of course, many criticisms of competitive note issue—including the claim that it is inconsistent with a generally well-behaved money supply—which I am not able to consider here. For a fairly comprehensive discussion, see Selgin (1988).

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gests that free development of a banking system would naturally lead to its being dominated by a single firm, from which other banks would borrow in times of stress, and to which they would send their reserves in normal times. What this view neglects is that the extent of hierarchy observed in contemporary banking systems is not consistent with private bankers' pursuit of their selfish interests in an unregulated setting (Selgin 1988, chap. 2). Such hierarchy is another consequence of legal restrictions, including especially restrictions on note issue, that have allowed particular banks to dominate and control their rivals while also weakening the latter.

By far the most important example of this in history has been the rise to dominance of the Bank of England. The Bank's emergence as a central bank was the result of its receiving a series of legal privileges in return for large loans to the government (Smith 1936, pp. 9, 129; Bagehot [1873] 1915, pp. 90–97). Among the Bank's more important privileges prior to 1826 were (1) its monopoly of note issue within a 65-mile radius of London, (2) its monopoly of limited liability and joint-stock banking, and (3) its status as exclusive holder of the government's deposits. The prohibition of limited liability and joint-stock banking outside of London was especially injurious, as it forced most of England to depend upon small, undercapitalized "country" banks as a source of currency.[21] According to Lord Liverpool (quoted in Dowd 1989, p. 125), this arrangement was

> one of the fullest liberty as to what is rotten and bad, but one of the most complete restrictions as to all that is good. By it a cobbler or cheesemonger [may issue notes] while, on the other hand, more than six persons, however respectable, are not permitted to become partners in a bank with whose notes the whole business of the country might be transacted.

According to Parnell (quoted in White 1984, p. 40), it was the presence of so many "cobblers and cheesemongers"[22] in English banking that caused hundreds of banks there to fail in 1826. In contrast, the relative freedom of Scottish banking had endowed it with several

[21]For many years the Bank itself did not feel compelled to establish branches for the issue and redemption of its notes beyond the city. An 1826 campaign led by Thomas Joplin resulted in a new law allowing the establishment of joint-stock banks outside of London; but the law did not permit the new joint-stock banks to issue notes, and it encumbered them with a variety of "irksome" restrictions. Although many of the latter were eventually removed, the prohibition against joint-stock bank-note issues remained in place. See Nevin and Davis (1970, pp. 59–60).

[22]*It is not clear whether Parnell borrowed this expression from Lord Liverpool or vice versa.*

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strong joint-stock banks, with nationwide branches, all of which were unharmed by the crisis in England.

The Bank of England's privileges also caused other banks to keep their specie reserves with it and to treat its liabilities as their ultimate source of liquidity.[23] This situation only served to enhance the subservience of the weaker banks to their privileged rival, causing the system to be still more top heavy and "hierarchical." The Bank had learned, furthermore, that in the event of a crisis it could rely upon the government to protect it from bankruptcy by sanctioning its suspension of payments. Thus while other banks were unnaturally dependent upon the Bank, it could refuse to assist them with impunity—a kind of moral hazard opposite the kind most associated with central banking today. A relatively late example of this may have been the Bank's refusal to extend aid to Overend, Gurney and Company in 1866 (De Cecco 1975, pp. 80–82). A better example, perhaps, was the Bank of France's willful destruction of rival, provincial banks of issue in 1847–48 (Kindleberger 1984, pp. 104–7). Such conduct by central banks only serves, of course, to further strengthen their command over remaining, underprivileged rivals.

The exalted status of the Bank of England did not just make other English banks depend on it. For London was also the financial capital of Great Britain and, indeed, the world; to dominate the London money market was, therefore, to dominate the world money market. The consequence of this was that non-English banks, including the Scottish banks during the free-banking era, occasionally looked upon the Bank of England as a potential source of emergency short-term funds.

This fact has led several writers (Cowen and Kroszner 1989; Rockoff 1986, p. 630; Rothbard 1988; Sechrest 1988; Goodhart 1988) to deny that banking in Scotland was ever truly free after all because it, too, depended upon access to a central bank. In arguing thus they confuse a banking system's reliance upon access to a financial center with its reliance upon access to a privileged bank of issue. Had banking in England been free, there is no doubt that London would still have been Great Britain's (as well as the world's) financial center. In that case Scottish banks might have relied upon any of several large, English joint-stock banks to gain access to the central money market or, better still, would simply have located their own branches (if not their headquarters) there. To really appreciate the irrelevance of this criticism of free banking, though, one should contemplate

[23]This practice was officially sanctioned by the Bank Act of 1833, which made Bank of England notes legal tender for payments among other banks.

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what would have happened if Scotland had set up a monopoly bank of issue while England allowed its banks to develop free of legal restrictions. Then economists might have been treated to the spectacle of a privileged central bank having to rely upon several competitive banks of issue as "lenders of last resort" and as conduits to the national and world money markets. What conclusions would they have drawn from this? What conclusions should be drawn from the fact that large Canadian banks have sometimes relied upon private banks in New York City both prior to and after 1913? Finally, what should one conclude from the experience of the Swedish *enskilda* banks prior to 1900—which were as a matter of policy refused assistance by the more privileged Riksbank but which were free of failures nonetheless—or from the similar experience of Switzerland's cantonal banks of issue in the years preceding the Franco-Prussian War? None of the latter systems can be said to have depended even indirectly upon assistance from a privileged central bank.

Thus the "hierarchy" enjoyed by central banks is not a natural development but rests on "a combination of political motives and historical accident" (Smith 1936, p. 2), the most important motive being governments' desire to gain financial favors from particular banks. Far from being consistent with the healthy development of private banking, such hierarchy is a cause of financial weakening: The strength enjoyed by central banks is strength sapped from their would-be rivals. Moreover, the central-banking "game," in which strength is transferred from several banks to one bank, has a negative sum.

Significantly, Walter Bagehot—the "high-priest" of central banking—understood all of this. The Bank of England's special responsibilities stemmed, in his view, from its holding "the ultimate banking reserve of the country." But this fact, far from being natural, was due to the Bank's "accumulation of legal privileges . . . which no one [sic!] would now defend" ([1873] 1915, pp. 66, 90–97). Far from wanting to defend "the monarchical form of Lombard Street," Bagehot (pp. 65–67) called it "dangerous" and contrasted it unfavorably to the "natural" system "of many banks of equal or not altogether unequal size [that] would have sprung up if Government had let banking alone":

> In all other trades competition brings the traders to a rough approximate equality. There is no tendency to a monarchy in the cotton world; nor, where banking has been left free, is there any tendency to a monarchy in banking. . . . A monarchy in any trade is a sign of some anomalous advantage, and of some intervention from without.

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Present-day defenders of central banking have neglected this part of Bagehot's teachings, twisting his "second-best" argument for central banks into a "first-best" argument.[24]

Panic-Proof Free Banking

I have tried to suggest above that the maximization of banking efficiency and the avoidance of fragility and crises are not conflicting goals, one of which demands competition and financial liberalization and the other of which demands regulation and control. A liberalized and hence competitive banking system is likely to be both more efficient *and* less fragile and crisis prone.

Nevertheless, even such a free-banking system would not necessarily be panic proof. As long as banks continue to have liabilities unconditionally redeemable on demand, while holding only fractional reserves, the possibility of a systemic collapse would still exist. The system could still be exposed to a sudden increase in the public's demand for the ultimate money of redemption, prompted by an invasion or revolution; or it might be threatened by a major computer malfunction (like the one that caused the Bank of New York's 23-billion dollar default in 1985). An important question, then, is whether a lender of last resort would be necessary even in a deregulated system to guard against such rare events.

The answer, I think, is that it would not, the reason being that the widespread reliance upon bank liabilities unconditionally convertible on demand is itself an artificial consequence of legal restrictions. As Rockoff points out (1986, p. 623), the Act of 1765 imposed a fine of £500 on any Scottish bank failing to redeem a note on demand; likewise free-banking laws in the United States required state authorities to redeem *all* of a bank's notes from the proceeds of sales of deposited bonds in the event that the bank failed to redeem a single dollar on demand.[25] Such laws prevented banks from offering alternative, contingent-convertibility contracts to their customers, thereby needlessly exposing them to a higher risk of default and panic.

[24]Kindleberger (1978, p. 164) even declares that Bagehot "thought it proper that the Bank of England, and not the banks themselves, should hold the reserves necessary to get the country through a panic"—the exact opposite of the truth.

A well-known British economist who shared Bagehot's critical views on central banking was Sir Robert Giffen (1905, pp. 175–76).

[25]Enforcement of the law was another matter. There are plenty of stories, including ones that are probably true, about note brokers and private individuals being "run out of town" both in Scotland and in the States for daring to request cash in exchange for notes. Ideally, the law should allow banks to engage freely in all manner of contractual agreements with their customers, enforcing those agreements as written. In practice the law did neither.

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Contingent-convertibility contracts—contracts that make the redemption of a bank note or deposit credit contingent upon the *total value* of redemptions being requested at any moment—may take either of two forms. One allows a bank under special circumstances to "suspend" or "restrict" convertibility of deposits into high-powered money. A bank while suspending convertibility may still engage in other types of banking business, by issuing notes, accepting deposits, and making loans. It may also make special arrangements for continuing its settlements with other banks, thereby ensuring that notes and checks drawn from it can still be used for payments generally. The other kind of contingent-convertibility contract provides for the issuance of "option-clause" notes, which can, at the issuing bank's discretion, be redeemed either on demand or after a predetermined delay, with interest paid to the notes' holders as compensation in the latter case. Both option-clause notes and suspension of deposit convertibility have been observed in history. The former were issued by Scottish banks prior to 1765; the latter were resorted to on several occasions by national banks in the pre–Federal Reserve era.[26] Moreover, as Dowd (1988), Gorton (1985), and others have observed, their use is entirely consistent with the interests of both banks and their customers, so that legal restrictions alone have stood in the way of their more widespread use in place of unconditionally convertible liabilities. It would be only in banks' interest to exercise their option to suspend cash payments in situations where such payments become physically impossible (Postlewaite and Vives 1987, pp. 490–91). According to Gorton (1985, p. 190) suspension in such circumstances prevents bank liability holders from engaging in behavior that could force their banks to suffer "fire-sale" losses: "Suspension circumvents the realization of suboptimal depositor withdrawals which are based on (rational) fears of capital losses" but which could lead to even *greater* losses than a more orderly process of liquidation. More importantly, perhaps, the mere prospect that suspension may be resorted to will, according to Dowd (1988, p. 327), "suffice to stabilize [a] panic and protect the banking system from collapse." Thus contingent-convertibility contracts can provide an effective substitute for a lender of last resort or deposit insurance or other government-imposed devices for containing a banking panic.[27]

[26]Although it is true that suspension of payment by national banks could not be based upon prior, contractual consent of their customers, Gorton (1985, p. 177) observes that "neither banks, depositors, nor the courts opposed it at any time."

[27]Diamond and Dybvig (1983) claim that contingent-convertibility contracts may be inferior to deposit insurance because suspension under the former will harm the interests of depositors who wish to withdraw high-powered money for the purpose

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Conclusion

Despite frequent claims to the contrary, fractional-reserve banking systems are not inherently fragile or unstable. The fragility and instability of real-world banking systems is not a free-market phenomenon but a consequence of legal restrictions. This does not mean that deregulation is without its dangers. Dismantling bad bank regulations is like cutting wires in a time bomb: The job is risky and has to be done in carefully ordered steps, but it beats letting the thing go on ticking. Once the fuse—the legal restrictions—is dismantled, the payload—central banking and fiat money—can safely be disposed of.

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of increasing their consumption expenditures even as it safeguards the interests of depositors who "panic." This argument neglects the fact that high-powered money is not needed for normal expenditures, particularly if bank notes can be issued freely. A suspension of payments, unlike a bank holiday, need not interfere with depositors continuing to make purchases by check or bank note. Historically, banks (and hence the public generally) have frequently agreed to accept notes and checks of suspended (even failed) rivals at par.

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Unsettled Issues in the Case for Free Banking

Thomas M. Humphrey

George Selgin has written an excellent paper—clear, vigorous, and thought-provoking. He leaves no doubt about where he stands. His refreshing lack of ambiguity and equivocation makes his paper a pleasure to read and to discuss.

He argues two points. First, a system of free competitive banks is inherently more efficient and less fragile than one bound by legal restrictions. Second, such a system, being stable, needs no lender of last resort (LLR).

I largely agree with the first point, although hardly with the degree of certitude to which Selgin adheres to it. True, a completely deregulated banking system might be less fragile than a regulated one. But it seems likely that, during the transition to completely free banking, deregulation itself might make the system more vulnerable to liquidity shocks. Then too, I suspect that while complete deregulation could lessen the likelihood of liquidity crises, it also might increase the magnitude and severity of those that might occur. But I believe the first consideration would outweigh the second. So, on balance, deregulation should lessen financial fragility.

Outside versus Inside Money

On Selgin's second point, however, I disagree. Does it follow that removing all restrictions on banking would obviate the need for an LLR? I do not think so. Even with free banking, events will occasionally trigger the desire of moneyholders to shift from inside (or bank-created) into outside (or high-powered) money. In a fractional reserve banking system those demands must be accommo-

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dated if monetary stability is to prevail. There has to be some agency to prevent the multiple money stock contractions and severe deflationary pressures that otherwise would occur from panic-induced attempts to switch from inside to outside money. Free banks could not do the job since they would issue only inside, not outside, money. Of course, a competitive banking system could issue ersatz high-powered money in the form of option clause notes and clearinghouse certificates. But these expedients, though preferable to doing nothing and closing the banks, are imperfect substitutes for outside money itself. They are relatively costly and, historically, have been unpopular ways of handling demands to switch into high-powered money.

It seems to me that Selgin slides too quickly over this point. Even in a system of free banks, notes and deposits of those banks have to be convertible into some form of base or outside money. Since free banks themselves are inherently incapable of producing outside money, convertibility into which fixes the monetary standard and the unit of account, some role would remain for the central bank. In short, competitive banking does not provide outside money. Given a fiat monetary standard, only the central bank or LLR does that.

Neglect of the distinction between inside and outside money invalidates at least two other Selgin arguments. It invalidates his assertion that liquidity panics and bank runs could be avoided if banks were free to issue hand-to-hand currency in the form of their own notes. Such note-issuing powers, Selgin contends, would enable banks to accommodate their depositors' panic-induced desire to switch to cash. But this argument clearly confuses inside with outside money. Private bank notes are inside money. During panics, people do not want to convert into inside money. Rather they wish to convert into outside or high-powered money, namely gold and/or notes of the central bank. Henry Thornton, the formulator of the classical theory of the lender of last resort, made this point as early as 1802 when he said that liquidity crises due to harvest failure, threat of invasion, or war caused people to want to get out of notes and deposits of country (i.e., non-London) banks and into gold or its equivalent, namely Bank of England notes.

Neglect of the inside-outside money distinction appears again in Selgin's suggestion that anti-branching laws and the Fed's monopoly over note issues caused the Great Contraction of the 1930s. In fact, neither did so. What caused the depression was the Fed's failure to issue high-powered money in sufficient quantities to keep the money stock from declining in the face of rises in the public's cash/deposit ratio and bankers' reserve/deposit ratios. The Great Depression is a prime example of what can happen when the lender of last resort

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fails to function. Contrary to Selgin's argument that an LLR is unnecessary, the depression dramatically demonstrates the need for a properly working LLR in a fractional reserve banking system.

Unplanned Evolution or Conscious Design?

It is ironic that an avowed Austrian economist like Selgin would replace the LLR—an institution that evolved through no conscious plan or design—with an alternative utopian system of his own design. Austrians traditionally argue for the spontaneous over the planned, for the evolutionary over the revolutionary. Usually they hold that institutions produced by cultural evolution operating through an invisible-hand process are superior to those produced by deliberate human design. Not in this case, though. No matter that LLRs evolved unplanned. No matter that they emerged spontaneously when central banks, initially established to raise revenue for the crown, gradually and reluctantly took on responsibility for averting liquidity crises. Selgin would replace them with a utopian free-banking system of his own design. Here is the irony of an Austrian advocating the planned over the spontaneous. If free banking is superior to all other monetary arrangements, why did it not gradually emerge as the dominant one?

Selgin, in behalf of his free-banking system, seeks to enlist the support of Walter Bagehot. And it is true that Bagehot viewed laissez faire as the most perfect and natural system of banking. But Bagehot, unlike Selgin, did *not* advocate replacing the existing English system (complete with legal restrictions and central banking) with the ideal natural system. He thought that once the public had become acclimated to the existing system, imperfect thought it might be, it would be a mistake to alter it radically.

Risks of Radical Reform

There is much to be said for Bagehot's view. Why not accept the inherited system of central banking and make improvements to it? Doing so would be far less risky than moving to the theoretically ideal, but historically untried (in the United States at least), system of completely free banking. Besides, there is plenty of evidence from places like West Germany, Japan, and Switzerland that central banks can deliver much the same degree of monetary and banking stability that Selgin claims for free banking. The Federal Reserve, too, certainly has the power, though not always the will, to deliver such stability. Why destroy that power for something as yet virtually untried? Far better for scholars to devote their efforts to convincing the Fed to use the stabilizing powers it possesses.

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Possibility of Overissue

Selgin claims that free banks collectively cannot overissue. This claim is untenable. Consider a case where free banks are operating on an inconvertible paper standard and lending against sound commercial bills drawn to finance real goods in the process of production (the real bills doctrine). Let a temporary random shock drive up money and prices. The boost in prices raises the nominal value of finished and semi-finished goods, thus giving rise to an increasing volume of bills presented to the banks for discount. Banks, adhering to the real bills criterion, lend additional new money against these bills. The extra money created underwrites further price increases. In this way, money, prices, and bills chase each other upward ad infinitum in a self-reinforcing inflationary spiral. Inflationary overissue persists because no reserve constraint operates to stop it. Since all banks are expanding at the same time, they will not be losing reserves (central bank notes) to other banks through the clearinghouse. Their reserve ratios will be falling, to be sure. But they will be totally unconcerned about such falling ratios since they are using the real bills criterion rather than reserve ratios as their policy guide.

Even under a gold standard, free banks as a group could temporarily inflate the currency. Although ultimately constrained by the resulting external drain of gold reserves through the balance of payments, they could, by responding sluggishly to the loss of reserves, overissue for a long enough time to cause problems. Indeed the Currency School, in its mid-19th century debate with the rival Banking School, saw such behavior as the cause of the English monetary crises of the 1820s and 1830s. According to the Currency School, the country banks together with the Bank of England had continued to overissue even as gold was flowing out, delaying contraction to the last possible minute, and then contracting with a violence that sent shock waves throughout the economy. The Currency School argued that because of this possibility of the banks overissuing as a group, convertibility per se was an inadequate monetary safeguard and needed to be supplemented with legal restrictions in the form of a 100 percent marginal gold reserve requirement on the Bank of England and a freezing of the note issue of the country banks. No free-banking proponent who was aware of the Currency School-Banking School debate would claim that free banks cannot overissue.

Other Considerations

The foregoing are the major points I wished to make. But I also partially disagree with Selgin on at least four minor points. First, so-

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called zombie thrift institutions with negative net worth have *not* been propped up by central bank loans, at least not before February 1989. Even today the Federal Reserve requires that its discount-window loans be fully collateralized; insolvent institutions with worthless collateral do not qualify. True, in February 1989 the Fed announced that it would, as part of the Bush Administration's emergency plan, begin lending to insolvent thrifts on FSLIC collateral. In the end only a few such loans were made, and all were fully collateralized. Still, this move sets a potentially dangerous precedent. If lending standards to insolvent institutions are liberalized even further, Selgin may prove to be right after all.

The remaining points of disagreement can be dealt with summarily. (1) Policy mistakes of the central bank are not the only macroeconomic shocks of sufficient magnitude to trigger economy-wide bank runs. Real and expectational shocks could also do it. Examples include the shocks stressed by Henry Thornton: crop failures in predominantly agrarian economies, rumors of invasion, war, or revolution. (2) It was not the critics of the Bullion Report who blamed the Bank of England for inflationary overissue of paper during the Bank Restriction period. Rather it was the writers of the Bullion Report itself and their followers (the Bullionists) who blamed the Bank. The critics of the Report were the so-called Antibullionists. They sought to absolve the Bank from blame. (3) Finally, the U.S. currency shortage after 1882 was *not* due to the shortage of government securities as collateral. The collateral constraint was not binding; banks did not issue up to the full potential allowed by their security holdings. Philip Cagan calls this the puzzle of the National Bank notes, that is, their failure to grow up to the constraint.

Resolving the questions raised above—particularly those relating to outside money and the possibility of inflationary overissue—would, I think, considerably strengthen Selgin's already impressive case for free banking.

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Rethinking the Case for Central Banking

William A. Niskanen

May I make a confession. In some areas of public policy I sense that my views are usually quite radical, in that I am prepared to promote a substantial reduction of the contemporary role of government. In other areas my views are more conservative, more from lack of understanding than from any conviction that the status quo is appropriate.

George Selgin has convinced me that my conservative acquiescence to the contemporary role of central banks has been misplaced. I had long recognized that central banks were the primary agents of both major recessions and sustained inflation, but I had casually accepted the argument that a lender of last resort and a monopoly of note issue were necessary to prevent panics in a fractional-reserve banking system. Selgin and other scholars now inform me that private banks worked quite well in several historical periods before being subject to restrictions on their organization and activities that reduced their potential to respond to runs. And I am aware that some contemporary banking systems work quite well without a central bank (such as Hong Kong) or without deposit insurance (such as Switzerland). Moreover, it is increasingly clear that the conventional arguments for a central bank are *second-best* arguments that assume the restrictions that have increased the vulnerability of private banks.

But it is less clear where we go from here. Selgin's paper concludes with a vivid analogy: "Dismantling bad bank regulations is like cutting wires in a time bomb: The job is risky and has to be done in carefully ordered steps, but it beats letting the thing go on ticking."

The Case for Changing Policy Regimes

The case for changing public policy must be based on two arguments: (1) With zero transition costs, it must be shown that the

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alternative regime is indeed superior; and (2) with positive transition costs, it must be demonstrated that a transition strategy can be implemented that yields *net* social benefits.

Zero Transition Costs

Some alternative policy would be better than the current policy if it could be implemented without transition costs. In this case, we need to convince the political community that central banking is a "time bomb." This is probably correct, but I am not optimistic that we can make the case. U.S. officials responded to the bank panic of 1907, not by removing the restrictions that contributed to this panic, but by creating the Federal Reserve. The financial collapse of 1929–33, a condition primarily attributable to grossly irresponsible behavior by the Federal Reserve, led to both deposit insurance and further sectoral and regional cartelization of the financial system. And the high rate of bank failures in this decade, a condition that is primarily attributable to the combination of deposit insurance and the cartelization of the financial system, is likely to lead to more regulation of bank portfolios. Moreover, the improved performance of monetary policy in this decade has reinforced the prestige of the Federal Reserve, despite an inflation rate that was unacceptable 20 years ago. A central bank may be a "time bomb," but some new crisis is probably necessary for others to understand this case, and there is a risk that the crisis would lead to ever-worse policies.

Positive Transition Costs

The first argument is not enough, as the costs of transition may be higher than the difference in the benefits of alternative policies. I am reminded of a comment about ending farm subsidies by a leading agricultural economist; he remarked that "the Niagara River is about as smooth five miles below the falls as above the falls, but the transition is a bitch." In this case, we need to understand the "carefully ordered steps" that would minimize the costs of a transition from the current banking system to a free-banking system without a central bank or deposit insurance.

Careful selection of a transition strategy is very important, because any wrong step would probably stop or reverse the process. This problem, for example, was not adequately addressed in 1980 when Congress deregulated deposit rates and increased deposit insurance without reforming the deposit insurance system; the result will be a huge cost ot the taxpayers and some reregulation. Selgin recognizes but does not address this issue, except in a footnote in which he concludes, I believe correctly, "that deposit insurance may have to

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be reformed or repealed *before* all portfolio restrictions (except those that concern clear conflicts of interest) can safely be lifted." In other words, repeal of Glass-Steagall should not be the first step.

The Optimal Policy Strategy

May I suggest, especially to my libertarian colleagues, that it is counterproductive to argue about end-states in the public arena. The optimal *strategy*, I suggest, is to make the case for an initial sequence of steps that would be valuable and low risk, whether or not the subsequent steps lead to the end-state that you believe may be desirable. Free banking, privatizing the Federal Reserve, and repeal of deposit insurance may be the best end-state, but that debate, at this time, is best left to the academic journals. The more important task is to determine the most important next steps.

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The Future of Price Stability in a Fiat Money World

Jerry L. Jordan

Political and economic restructuring—*perestroika*—is sweeping the world. Entire political systems are being restructured. Economic restructuring is occurring at the country, industry, and firm levels—the ultimate objective of which is to achieve better economic performance.

During the Great Depression of the 1930s, there was a pervasive, worldwide increase in government involvement in economic affairs. Mussolini's "corporate state" appears to have been the model for much of the increased political control over decisions about what was produced, where it was produced, who could produce it, how much could be charged for it, and how much workers and other factors of production could be paid for producing it.

After 50 years of laboring in this corporate state environment, we have started to see the dismantling of the 1930s' political/economic institutions at the national and international levels. Deregulation, denationalization (privatization), and tax reduction as well as tax reform are nearly universal, non-ideological phenomena. For the time being, concerns about governments reimposing wage and price controls, credit controls, exchange or capital controls, and other bureaucratic interferences in the economy can be put on the shelf.

One of the areas where we have seen little movement thus far is governments' monopolies of money creation through nationalized central banks. But the intellectual tide is slowly changing with increasing interest in the case for denationalization of money. (See, e.g., Friedman and Schwartz 1986.) The dangers and abuses of government monopolies of money creation have been well documented.

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The absence of any effective "rule of law" constraining the discretion of governmentally controlled central banks in the 20th century has been thoroughly studied.

The nearly universal rejection of collectivist approaches to economic activity should now start to include central banking and money creation. Private, competitive approaches offer greater stability and protection from political abuse, as experience demonstrates.

Failures of Discretionary Governmental Control

The performance of discretionary monetary authorities has been poor. There is growing concern about continued reliance in the future on a "great man" approach to discretionary monetary policies that are formulated and implemented by central banks. The United States has followed a purely discretionary approach to the formulation and implementation of monetary policy, at least since the early 1970s. Indeed, unless one believes that the Bretton Woods system or the "gold-cover clauses" (regarding the issuance of currency and deposits at Federal Reserve banks) provided much institutional discipline, the United States has pursued a discretionary monetary policy since the 1930s.

I have argued elsewhere (Jordan 1988a) that the existence of a government agency such as a central bank that exercises sole and unlimited discretion is inconsistent with the general character of the U.S. Constitution. Not surprisingly, this compromise of constitutional principles has not brought about monetary arrangements that ensure stability. Still, simply reverting to a specie standard would also not ensure stability and is not politically feasible in any case. A new, privately issued, unit of account—whether defined in terms of a commodity basket or a basket of fiat national currencies—could only very gradually become a viable alternative to the present monetary system.

I have chosen to focus on changes in the present institutional arrangements that I think can and should be implemented, and which would facilitate the evolution away from the present governmental, discretionary fiat monetary system. Some of my recommendations are intended to enhance market-derived discipline as it presently exists. Other recommendations are intended to increase the potential for evolutionary changes in monetary arrangements to provide greater discipline in the future.

A Public Choice Approach

The objective of this paper is not to give advice to the Federal Reserve about current monetary policy. Borrowing an analogy from

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James Buchanan, the presently constituted Federal Open Market Committee is like the players of a football team out on the field, playing according to the current rules of the game to the best of their abilities. Some of us have at times performed the role of those on the sidelines, whispering in the coach's ear about which plays to call, or asking to be put in the game. Some of us also have been "Monday morning quarterbacks," critiquing the way yesterday's game was played. But the present game is inherently flawed. The current system relies on a "great man" theory, emphasizing judgment and discretion rather than rules for formulating and implementing monetary policy.

Considering alternative monetary arrangements is like the team owners and consultants who gather in the off-season to consider changing the rules according to which the game will be played in the future. Continuing the analogy to competitive team sports, the "designated hitter" rule in baseball, the three-point play in basketball, and the "instant replay" in football are familiar rule changes that have affected the respective games.

The economics profession has achieved some success in the past in altering institutional arrangements for conducting monetary policy. The ending of the tiered structure of reserve requirements and the "lagged reserve accounting" system, abolishing the use of discretionary changes in reserve requirements for stabilization purposes, and phasing out Regulation Q interest-rate ceilings at depository institutions were all the result of economic analysis and empirical evidence that persuaded Congress that these "rules of the game" should be changed. I will recommend additional changes of the same type, and a few changes that would more fundamentally alter the nature of the game.

Functions of Money

In gathering information about relative prices and conducting transactions, people use as money that entity that economizes best on the use of other real resources (Alchian 1977, Brunner and Meltzer 1971). Thus, the efficiency of money influences the productivity of the real resources in society. The higher the quality of the entity that serves as money, the higher will be the standard of living.

Money can serve as a *store of value*, although many other assets also serve as stores of value, but not as money. Yet, I am skeptical whether any unit would ever serve as money that was not also a store of value. There is no case that I am aware of in which an entity did not serve as a store of value prior to beginning to serve other functions

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of money. Under present arrangements, alternative monies (e.g., foreign currencies or specie) can compete with the domestic monetary unit as stores of value and thereby provide some discipline, even if they do not compete in the other functions of money. Although not unique to money, the store of value function is, nevertheless, very important.

Money also serves as a *unit of account* and as a *medium of exchange*. The first is an abstract concept, while the second is tangible and potentially quantifiable. These functions are separable, even though we normally see the same entity serve as both the unit of account and the medium of exchange. When we contemplate alternative monetary arrangements, we should be careful to specify which of these functions, or both, will be influenced by proposed changes in the status quo (see, e.g., Klein 1974, McCallum 1986, White 1984). Also, communication would be enhanced if we are careful to distinguish between "dollars" and "dollars worth of" some asset.

For at least the next decade, dollars will continue to be both the unit of account and the medium of exchange in the United States. Also, U.S. dollars (i.e., Federal Reserve notes and privately issued travelers' checks denominated in dollars) serve as stores of value in many foreign countries. In some foreign countries, the dollar serves as the unit of account and even as the medium of exchange. U.S. dollar-denominated deposits at foreign domiciled institutions—so-called eurodollars—serve as stores of value in foreign countries; dollars also serve as a unit of account and, occasionally, dollar balances are the medium of exchange in international transactions.

U.S. dollars (Federal Reserve notes) occasionally serve as a medium of exchange in Canada, but the U.S. dollar is not the unit of account. In Mexico and elsewhere, the U.S. dollar has at times served as a unit of account even when U.S. currency or dollar balances are not the medium of exchange. Prices of internationally traded commodities are often quoted in U.S. dollars even though the transaction may be consummated in another currency.

Within this country, one may choose among U.S. Treasury coins, Federal Reserve notes, private bank deposits, and privately issued travelers' checks as forms of holding dollars. Starting January 1, 1990, banks in the United States will be permitted to offer deposits denominated in foreign currency units. It is already permissible to hold foreign national paper currencies and coins, but they do not serve as units of account or as media of exchange in this country.

The remainder of this paper concentrates on such issues as private versus public issuance of dollars and on competition for the dollar as a unit of account, as a medium of exchange, and, internationally, as

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a store of value. My emphasis is on the ways that discipline can be achieved as a result of falling information costs, falling transaction costs, and emerging technologies for money creation. In the evolution toward private monetary institutions, discipline can be reinforced by institutional changes that will constrain governmental creation of money units.

Achieving Monetary Discipline

No institutional discipline in the United States currently constrains the central bank's ability or authority to create nominal money units. We all understand that central banks do not create "real money balances." However, people sometimes talk as though the creation of additional fiat money units creates real money balances on a one-to-one basis. In fact, the opposite tends to be the case. Excessive creation of nominal money units reduces the efficiency/productivity of a nation's money, causing other real resources to be substituted for the functions of money. Consequently, achieving institutionalized or greater market discipline over the creation of nominal money units would increase social well-being.

In the 20th century, governments have increasingly financed current outlays by the issuance of interest-bearing obligations in well-developed capital markets without effective institutional constraint. In the United States, there is a national debt ceiling, but it is not binding since it is regularly increased every time the old limit is reached. The companion development of the phenomenon known as "open-market operations," whereby a central bank exchanges its own non-interest-bearing liabilities for the interest-bearing liabilities of the government sector—again without institutional constraint—has raised the average rate of inflation in the second half of the 20th century.

Present institutional arrangements raise the following questions: Is it politically feasible to sustain a non-inflationary monetary policy if there is an imbalance in the fiscal accounts? Namely, if institutional restraint on the government's ability to finance current expenditures by the issuance of interest-bearing obligations is lacking, is it practical to seek institutional restraint on the creation of money units by the central bank? If it is even theoretically possible, is it politically feasible? (See Sargent and Wallace 1981; also Sargent 1988.)

Furthermore, what would be the real economic implications of maintaining relative price stability through monetary policy if the imbalances of fiscal accounts persist? Karl Brunner and Allan Meltzer (1972), and later Jerome Stein (1977), have explored the implications

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of secular increases in the ratio of interest-bearing obligations of the government sector relative to the non-interest-bearing obligations—known as the monetary base. They concluded that a rise in this ratio gradually raises real interest rates and, therefore, affects resource allocation.

In such an environment, society increasingly uses resources to satisfy current consumption demands rather than to enhance the ability to increase consumption in the future. It thereby lowers the secular growth potential of national output and, over time, standards of living rise less rapidly. All of this suggests that it is not useful to focus only on monetary rules as though they are separable from fiscal rules. In the long run, monetary policy is a fiscal instrument—it is a way of financing the government. If there is no constraint on government spending as a share of national income, and no constraint on the government's ability to incur deficits and issue interest-bearing obligations, then it is not likely that in a democracy the central banking authorities would find it possible in the long run to sustain a non-inflationary monetary policy (Jordan 1984, Sargent 1988).

Institutionalizing Monetary Discipline

Proposals for institutional arrangements to constrain the central bank's ability to create money are not more likely to be implemented than a balanced budget amendment to the Constitution or an effective debt ceiling on the interest-bearing obligations issued by the U.S. Treasury. Consequently, I am not optimistic that a legislated "monetary growth rule" would serve as an effective constraint on money creation and help maintain price stability.

Milton Friedman (1980) has advocated simply freezing the monetary base. I have previously suggested that open-market operations should be abolished and that any expansion of the monetary base should be accomplished by some other mechanism. Karl Brunner and I have discussed the idea of holding a national lottery for increasing monetary-base units. For example, if the monetary authorities wanted to increase the monetary base by $1 million dollars next month, they would sell 10 million $1 tickets and award winnings totaling $11 million. Each ticket would have an expected value of $1.10. Thus, you would have a positive-sum lottery to increase the monetary base. The problem, of course, is that there would not be any effective institutional restraint on the growth of the monetary base, but it would be a movement away from the present system of enriching the brokerage community and government security dealers

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as the government creates money. The move would favor the general public who purchases the lottery tickets.

Allan Meltzer (1987) has argued that one way to institutionalize a constraint on the growth rate of the monetary base would be to enter into treaties with other countries agreeing to limit respective monetary base growth rates to the prior three years' growth rate of actual output, less the actual growth of velocity over the period. A "McCallum Rule" would be an alternative approach to providing some flexibility in the implementation of the treaty over time (McCallum 1988). The idea is that once the U.S. Congress has ratified a treaty with other countries, the treaty might serve as a more effective institutional restraint than we have in the case of the national debt ceiling. Such a proposal may have some merit as an interim form of discipline as long as we still have monopoly central banks. Such a treaty, however, should not be construed as a permanent solution to the dangers and inequities inherent in a statist approach to money creation.

At the time of the U.S. Gold Commission hearings, Robert Weintraub proposed linking the creation of monetary base units to the dollar price of gold. He wanted to limit the creation of base money in a way that made the monetary base effectively backed by the U.S. gold stock. However, any such formula would be quite easy for Congress to change, so it would not be any more effective than the debt-ceiling limit.

Financial Markets as Monetary Police

What discipline there has been in the last decade over creation of central bank money has come from the financial markets. Increasingly, people have come to think of the dollar's performance on the foreign-exchange markets and the behavior of interest rates in government securities markets as serving as police or disciplinarians constraining central banks' latitude for discretion in creating fiat money. When the dollar has been extremely weak on foreign-exchange markets, as we saw in the late 1970s and again in the second half of the 1980s, international political pressures arising from appreciation of other currencies caused the central bank to intervene and, thus, to contract base money.[1]

Foreign-Exchange Intervention

Domestic open-market operations should be abolished except in the case of a declared "national emergency." Any intervention by the

[1]For a discussion of the effects of sterilized and unsterilized foreign-exchange intervention on the growth of the monetary base and money supplies, see Jordan (1988b).

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central bank in foreign-exchange markets should also be prohibited. Some of the rhetoric about intervention on foreign-exchange markets contributes to confusion about money creation. We see reports in the newspapers that the Federal Reserve is said to have "purchased dollars." This "trader talk" makes no economic sense because the Federal Reserve does not have any means of paying for dollars other than through borrowing foreign currency (through swap agreements with foreign central banks) or by selling currencies that have previously been acquired by the U.S. Treasury for the exchange stabilization fund. The idea of the Federal Reserve "buying dollars" should be interpreted to mean that the Federal Reserve is *extinguishing* dollars—the medium of exchange, not the unit of account.

The disposal of foreign-currency units that the Fed does not own, but has borrowed from other central banks or that the U.S. Treasury is holding, results in a contraction of the monetary base. When the intervention to sell foreign currencies involves "swap agreements," the Fed has incurred an obligation to repay the borrowed currency, so they have engaged in a "short sale." Selling short entails risk—in this case to the U.S. taxpayers. My guess is that the reason the U.S. Congress tolerates this type of transaction is that members of Congress do not understand it.

The incentive not to sterilize fully such intervention comes from the fact that a capital loss will be incurred if the dollar continues to fall after foreign currencies, obtained through swaps, have been sold. However, such risk has not provided consistent discipline in the past. A way of viewing this is in terms of domestic open-market operations. Instead of saying that the Federal Reserve "bought" government bonds, one could say that previous holders of government bonds "purchased" monetary-base units and "spent" interest-bearing government securities to pay for them. Thought of that way, the "price" of base money would be expressed in terms of the inverse of the price of government bonds. When the Federal Reserve bids up the price of government bonds in dollar units (and, therefore, temporarily bids down the nominal interest rate), the mirror image is that the government-bond price of base money has gone down.

A transaction in which our central bank sells dollars or purchases foreign currency increases base money the same as when there is an open-market operation to acquire government securities. Such monetization of debt is a form of unlegislated tax and usually is a very regressive as well as divisive form of taxation.

Competing Monies

In a very fundamental sense, there is a competing demand for base-money units between transactions liabilities issued by depository

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institutions and currency. Under current institutional arrangements, for a given amount of base money, an increase in the public's desire to hold currency reduces the reserves available to support transaction liabilities at depository institutions, causing a multiple contraction of such deposits. Any increase in the demand for transaction liabilities issued by financial institutions and, therefore, in the reserves necessary to support them forces a contraction of currency held by the public unless there is an accommodating increase in monetary base provided by the Federal Reserve.

The eventual emergence of "electronic currency" will create a private alternative to Federal Reserve notes as currency and will allow banks to hold fractional reserves against currency. Such arrangements will eliminate one source of fluctuations of the various monetary multipliers caused by competing uses of base money when one type of money is supported by fractional reserves and another type is not.

The demand for base money issued by the government sector would go down, as private currencies—whether denominated as American Express (AMEX) notes, European Currency Units (ECUs), or dollars—replace governmentally issued 100 percent reserve currencies. Theoretical and empirical research will have to derive the monetary multiplier and the velocity implications of such private currency arrangements.

If interest were paid on reserves that the depository institutions are required to hold at the Federal Reserve, then we would have a shrinking stock of non-interest-bearing "high-powered money" or monetary base as private currency replaces Federal Reserve notes. All government liabilities issued by both the Treasury and the central bank would be interest bearing, except for any paper currency and coin that still circulates. But, if central-bank fiat currency is a diminishing part of the total because of the emergence of electronic currencies issued by the private banking system, there would be even less rationale for open-market operations.

As foreign-currency-denominated deposits become available and more common—at least as alternative stores of value—"competing base monies" become more meaningful. Since the demand for base money is derived from the demand for currency and demand deposits, changing public preferences for alternative monetary units will constrain the central bank's ability to monetize debt. Lower costs of switching to alternative currencies will inhibit the central bank from engaging in excessive monetary creation.

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Institutional Reforms

For most of the 75-year history of the Federal Reserve system, money and banking textbooks have taught that there are three tools of monetary policy: reserve requirements, the discount rate, and open-market operation. Since enactment of the "Depository Institutions Deregulation and Monetary Control Act of 1980," there have been no changes in reserve requirements imposed on depository institutions. That still leaves two tools for discretionary policies.

Discount Rate

Economists are generally agreed that discretionary changes in the Fed's discount rate have little quantifiable effect on anything important. Yet changes in this rate are highly visible and tend to be politically sensitive. Removing the discretion and the political sensitivity would be highly desirable. Initially, the Fed should be encouraged to frequently raise this rate, explaining increases to the politicians as anti-inflationary actions, until the rate is above the federal funds rate. Then, when the federal funds rate falls below the discount rate, the Fed should announce that it is going to cut the discount rate and float it at a level one-quarter percentage point above the federal funds rate. Announcement of a floating rate will be more acceptable if it involves a reduction of the rate than if it involves an increase. Establishing a small penalty above market rates will make borrowing at the discount window a "right," rather than a "privilege," as it is now. Floating the rate will end the discretion and eliminate the political sensitivity of changes in the rate.

Open-Market Operations

On behalf of all of the Federal Reserve banks and under the direction of the Federal Open Market Committee, the Trading Desk of the New York Federal Reserve Bank engages in transactions in the government securities market. When the Fed "buys" government securities, the debt is effectively cancelled. This action is referred to as "monetization" of the national debt. What are often referred to as the "non-interest-bearing liabilities of the government"—bank reserves and currency—are increased as a result of the Fed's monetization of government debt. There are no institutional limits on the amount of interest-bearing debt that can be cancelled in this way, and so there is no limit on the amount of non-interest-bearing debt, or monetary base, that can be created. This undesirable situation is, I believe, a source of much of the monetary instability of the past 40 years.

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Congress should be persuaded that open-market operations, like changing reserve requirements, should be undertaken only very infrequently—such as during a declared "national emergency." All of the securities currently held by the Federal Reserve Banks should be cancelled. At the end of 1988, the Federal Reserve Banks held nearly $240 billion of U.S. government securities. The facade of the Fed's "income" from such securities drives a wedge between corporate before- and after-tax income in the national income accounts and should be eliminated. The Treasury's actual net interest expense—excluding the amount currently paid to the Federal Reserve Banks and then returned to the Treasury as "other income"—would be correctly reported.

Federal Reserve Board and the Reserve Banks

Back in 1913, Carter Glass and his congressional colleagues thought they were setting up a system of "bankers' banks," supervised by a quasi-governmental board. "Reprivatizing" the Federal Reserve banks would move us back in the direction originally intended and would reintroduce some competitive discipline. The Board of Governors should be financed by congressional appropriations, rather than assessments of the Reserve banks. The Reserve banks should be operated as profit-seeking companies. They should cease performing those services that can be performed better by others; in the services they do provide, they should be allowed to compete with one another. Economic efficiency requires that Reserve banks provide only those services in which they have a comparative advantage.

District boundaries should be abolished (present boundaries were supposed to have been only a temporary expedient), and the owners of the Reserve banks (member commercial banks) should be permitted to sell as well as buy shares of the Reserve banks. Reserve requirements are now uniform as well as universal for depository institutions, and there is universal access to the discount window and other services, regardless of the type of institutional charter held. Thus, there is no reason to require some depository institutions to hold stock in Federal Reserve banks while others do not.

Reserve Requirements

The Federal Reserve Banks should be permitted to pay interest on reserve balances, and the level of such reserves should be that amount necessary for clearing and liquidity purposes. Non-interest-bearing reserve requirements, with a minimum level above the desired reserve level, serve as a tax on the right to operate as a bank.

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They reduce the earnings of the depository institutions, and they create an inequity between depository institutions and their competitors such as money market mutual funds. The current 12 percent idle reserve balance on transaction liabilities of depository institutions is excessive. The Federal Reserve should begin to gradually lower the minimum reserve balance to the 8 percent level permitted by the 1980 legislation. New legislation should be sought to permit further reductions if it then appears that 8 percent is greater than the level necessary for clearing purposes.

Reserve requirements on "travelers' checks" issued by banks should be abolished. Currently, travelers' checks issued by nonbanks (American Express, Mastercard, Visa) are not subject to reserve requirements. It is ironic that the Federal Reserve now includes in measures of the U.S. money supply about $7.5 billion of travelers' checks issued by nondepository institutions, while depository institutions have not been successful in creating this form of private money. The 12 percent idle reserve on outstanding amounts is an impossible hurdle for depository institutions to overcome in competing with nondepository instructions that must maintain only a clearing balance, based on actual redemption experience. This inefficiency should be eliminated.

Emerging Technologies and Further Reforms

Effective January 1, 1990, U.S. commercial banks will be permitted to offer deposits denominated in foreign currencies. There should be no legal reserve requirements on such accounts. The banks that offer them will be required to maintain corresponding balances in foreign currencies to hedge the currency exposure and/or will use other techniques for hedging against exchange-rate risk.

Travelers' checks denominated in foreign national currencies will become more readily available and serve as an alternative "abode of purchasing power" once the costs of converting relatively small amounts are lowered. Travelers' checks, or deposits denominated in ECUs or other "baskets" of national currencies, will provide opportunities for diversifying exposure to purchasing-power changes.

Private Electronic Currencies

As "smart card" technologies become more available, the potential for truly private currency emerges. "Electronic currency" is created when a microdot records a claim on the issuing institution that can be transferred to others. A "withdrawal" occurs when an individual instructs the bank to transfer funds from a deposit account to the

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smart card. When a purchase or payment is made, the recipient receives a claim on the bank. In the meantime, the outstanding amount of "float" recorded in the smart card is a new form of privately issued currency. As such, it competes with Federal Reserve notes and Treasury coins, as well as other private currencies such as travelers' checks.

There should be no legal minimum reserve requirements imposed on outstanding smart-card liabilities. Such amounts should not be defined as "deposits." Actual experience with clearings will dictate the liquidity balances that will be held by the issuing institution, as is the case with American Express checks today. If the Federal Reserve imposes reserve requirements or other restraints on the issuance of such privately issued electronic currencies, banks will not be able to compete, and once again the unregulated nonbanks such as American Express, Mastercard, and Visa will become the dominant issuers of private currency.

New currency units—defined initially as a fixed-weight basket of familiar national currencies, such as ECUs or AMEXs—are now becoming possible. Accounts denominated in units that represent baskets of currencies will occur first as an alternative store of value. Whether a demand for alternative units of account or for media of exchange emerges will depend on the experience with the dollar and other national currencies in the future.

Alternatives to Federal Reserve notes and Treasury coins as media of exchange have always been available as deposits issued by private banks. In the 1980s, such deposits became more competitive as interest prohibitions or ceilings were eliminated. They would become even more competitive if non-interest-bearing reserve requirements were lowered or abolished.

Privately issued travelers' checks compete with government-issued currency and privately issued deposits as media of exchange, but generally are cancelled after only one transaction. The emergence of "electronic currency" technology offers the possibility of a new form of privately issued media of exchange.

Specific Performance

Alternatives to the dollar as a unit of account in the United States are not currently available. The institutional reform that would open up the possibility of privately issued alternatives to the dollar as a unit of account is legislation requiring the enforcement of "specific performance" by the courts. Currently, a contract between two parties can be stated in terms of a foreign national currency, gold, or other unit. However, in the event of default, the courts will not

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require performance in the stated unit, but will require a "dollar equivalent" to be paid. Failure of the courts to enforce specific performance seems to be contrary to the constitutional prohibition of laws "impairing the obligation of contracts." Enforcement of specific performance is essential to the creation of viable alternatives to the dollar as a unit of account.

Once the courts are committed to enforcing specific performance, contracts that stipulate specie, basket currencies such as ECUs, AMEXs, or commodity-backed-currencies will be tested for acceptability. Friedman and Schwartz (1986) are persuasive in arguing that a "phoenix" fiat currency has never arisen in the past and will not in the future. Any new currency unit will initially be defined in terms of existing fiat currencies, just as the Japanese yen and Deutsche mark were initially defined in terms of U.S. dollars after World War II. The yen and mark were delinked from the dollar only when the dollar's tenuous remaining linkage to gold was severed in the early 1970s. Most national currencies of smaller or less-developed nations continue to be defined in terms of the dollar or one of the other major national fiat currencies.

Summary of Recommendations

The following are some of the institutional reforms of present monetary arrangements that I believe should be implemented.

Near-Term Actions

As immediate steps, until further reforms can be implemented, the United States should

1. Seek a treaty with other major industrialized countries (such as those comprising the G-7), agreeing to form a "price stability club" in which each country agrees to limit the growth of its monetary base to a rate compatible with price stability and long-run growth potential.
2. Float the discount rate at a small premium above the Federal funds rate.
3. Lower the minimum reserve requirements on transactions to the 8 percent level permitted by current law and enact legislation to lower the rate further.
4. Allow interest to be paid on any reserve balances depository institutions are required to hold at Federal Reserve Banks.
5. Eliminate reserve requirements on travelers' checks issued by depository institutions.

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6. Prohibit central bank transactions in foreign-exchange markets, except in cases of declared national emergencies.

Longer-Term Reforms

Over the longer run, the United States should

1. Legislate "specific performance" so that contracts written in terms of foreign currencies, specie, various "basket," or other private currency units are enforceable in the unit specified in the contract.
2. Exempt from minimum reserve requirements all "electronic currency" issued by banks as "smart-card" technologies become available.
3. Abolish open-market operations.
4. Cancel the government securities currently held by Federal Reserve banks.
5. Reprivatize the Federal Reserve banks, abolish district boundaries, allow the Reserve banks to compete with one another, and permit commercial banks to buy or sell stock in Federal Reserve banks.

None of these proposals is "revolutionary"; none would result in dramatic changes in the public's available options regarding stores of value, media of exchange, and units of account. However, the changes in the institutional rules of the game would begin to affect behavior over time and ultimately would result in a lessening of the government's role in our monetary system. Now that market-oriented systems, relying on private initiative and unfettered competition, are becoming recognized as superior—even in socialist economies—denationalization of the money-creation process should be included in the agenda for economic restructuring.

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BOOK REVIEWS

Selected Essays of Gottfried Haberler
Edited by Anthony Y. C. Koo
Cambridge: MIT Press, 1985, 652 pp.

Gottfried Haberler is one of the true giants of economic thought in the 20th century. Indeed, it is hard to understand why he has not yet been awarded the Nobel prize for his many fundamental contributions to macroeconomics and international economic theory and policy analysis. With the publication of this set of his articles, the magnitude and diversity of his contributions can be much more conveniently appreciated. While one can always second-guess the precise composition of the set included, Anthony Y. C. Koo has done an excellent job in his selection.

When combined with his two classic books, *The Theory of International Trade* and *Prosperity and Depression,* this collection offers an excellent overview of Haberler's contributions to modern economic analysis. The value of these three volumes is by no means limited to those interested in the history of modern economic thought. It is remarkable how relevant to the major economic issues of the day a high proportion of Haberler's work remains. Indeed, as he nears 90, Haberler continues to contribute to the clarification of contemporary policy debates with his traditional combination of insight, common sense, and graceful exposition. I was pleased that several of his more recent contributions to policy debates have been included in this book.

The volume is divided into five parts reflecting Haberler's major contributions: international trade, international finance, economic development, inflation and business cycles, and monetary theory. The placement of particular articles seems somewhat arbitrary; one of Haberler's greatest strengths has been his attention to the interrelationships among topics that had been traditionally segregated—for example, his emphasis on the role of trade in development and on the international aspects of domestic inflation and macroeconomic policies.

So much of what Haberler has contributed has become incorporated into mainstream macroeconomics and international economic analysis without attribution that many younger scholars do not know how much of a debt they owe him.[1] This volume can help correct that oversight. It can also serve as a model for those wishing to learn how to do economic research fruitfully. While the mathematical sophistication of today's young economists far exceeds that of the tools used by Haberler, in his earlier days Haberler made numerous contributions to the development

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[1]For a convenient set of summaries and evaluations of Haberler's contributions to the analysis of international trade, economic development, international finance, and macroeconomics, see the essays by Robert Baldwin, Lawrence Officer, and Thomas D. Willett in *The Quarterly Journal of Economics* 97 (February 1982): 139–69.

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of technical economics. What young scholars can gain today from reading theoretical contributions is an appreciation of how one should go about creating policy-relevant economic theory. Haberler has not been an empirical scholar in the modern sense of the term; but he has been a keen student of history and of contemporary events, and his theoretical contributions have been heavily informed by his sense of real-world relevance. No degree of mathematical virtuosity can make up for a lack of such a sense in terms of producing theory that is useful to scholars and to policymakers.

Haberler is perhaps at his best in bringing his strong theoretical intuition to bear on the analysis of current policy issues. It is impressive to see how frequently he gives us crucial insights on various domestic and international policy debates by pointing out important conceptual distinctions and reminding us of relevant theoretical analysis and/or historical facts. His critiques of and contributions to policy debates take on questionable aspects of fashionable thinking from both the academic and policy communities. From the standpoint of the economics profession, it is somewhat disquieting to see how frequently his gentle reminders of basic economic principles are aimed at well-known academic economists, as well as policy commentators unschooled in economics. His critiques of fellow economists are a forceful reminder that technical brilliance and basic common sense do not always go hand in hand.

I can hardly claim to be an unbiased reviewer of Haberler's work. I have had the privilege of knowing him well, and his analytic but eclectic approach has heavily influenced my own thinking and research. I cannot help but conclude, however, that the evolving operations of the U.S. and the world economies continue to support the essential correctness of his approach. Neither a Keynesian nor a monetarist, he has paid serious attention to both schools and forged his own synthesis based on what he saw as more nearly correct in each set of doctrines. While never overlooking the importance of money, he did not believe it was all that mattered. (See, for example, his insightful analysis of the Great Depression in essays 16 through 18.) Neither did he accept an ultra-Keynesian approach to incomes policy, but like Keynesians, he did believe that the institutional environment could have an important influence on wage and price decisions that, in turn, could importantly affect the inflation and unemployment options facing an economy. His distinction between market- and controls-oriented incomes policies (see essays 12 and 15) made an important contribution to the debate on this subject.

His insightfulness and intellectual honesty led him toward realistic appraisals of policy alternatives. He was a major member of the small group of leading economists (such as Milton Friedman and Fritz Machlup) who, in the 1950s and 1960s, began to swing the opinions of academic economists in favor of flexible exchange rates, but he never saw them as a panacea. He was quite cognizant of the many problems

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that floating rates would not solve; indeed, Haberler continually stressed that in his judgment they were a second-best solution necessitated by wage and price stickiness and by the lack of political willingness of national monetary authorities to conduct policies in a manner that would allow fixed exchange rates to be maintained without controls (see essay 11). Though a leader in emphasizing the importance of international considerations for domestic macroeconomic analysis, Haberler did not succumb to the belief of global monetarists (e.g., Arthur Laffer, Ronald McKinnon, and Robert Mundell) that international developments dominate the behavior of the domestic economy (see essays 10, 11, 13, and 14).

I would strongly urge younger economists not familiar with Haberler's contributions to macroeconomics to sample his short concluding essay, "Rational and Irrational Expectations." In only 15 pages this friendly critique of rational expectations analysis ranges from the psychological theories of expectational mistakes developed by Pigou and Keynes to William Fellner's credibility hypothesis put forward as a softer and, Haberler believes, more plausible formulation of the basic insights of the rational expectations approach. While certainly no champion of economic analysis based on assumptions of irrationality, Haberler argues that "cyclical swings are too irregular and the government's policy reactions too uncertain to warrant the conclusion that all market participants, or the great majority, are likely to draw the same—correct—conclusions for the future. Thus, errors of optimism and pessimism continue to be made" (p. 604). Likewise, Haberler argues that the initial rational expectations literature made "a drastic simplification to divide government actions into just two sharply distinct categories—systematic fully predictable policies and unsystematic entirely unpredictable shocks. In reality, government policies are spread out over the whole range between the two extremes. In other words, it is a question of more or less predictability and not one of either-or" (p. 608). This is a good example of the insight and common sense Haberler brings to his economic analysis. It is pleasing to be able to note that some of the more recent modeling of rational expectations has, in fact, been moving in the direction suggested by Haberler.

In summary, this is a wonderful book honoring a great economist. Other economists can learn a great deal about how to do economics from studying the progression of Haberler's contributions, and all those interested in the problems facing our domestic and international economies can benefit from reading the substantial number of policy essays included in this volume. If those who are not already familiar with Haberler's work will take the short time necessary to read the last essay in this volume, I confidently predict that a high proportion will be stimulated to read further.

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Keynes's Monetary Theory: A Different Interpretation
Allan H. Meltzer
New York: Cambridge University Press, 1988, 336 pp.

In this controversial book, Meltzer contends that Keynes's central message has been misunderstood. According to Meltzer, that message as contained in the *General Theory* was most definitely *not* the notion of the spending multiplier or the theory of effective demand according to which output rather than prices adjusts to equilibrate aggregate demand and supply. Nor was it the notion of an economy caught in a liquidity trap, or of the interest inelasticity of investment, or of the downward rigidity of money wages, or of deficient aggregate demand as the cause of unemployment, or of fluctuating investment as the source of business cycles, or of irrational expectations, or of public works as a remedy for unemployment. Rather Keynes's central message was that excess uncertainty is the root cause of suboptimum levels of output and employment and that the eradication of such uncertainty is the first duty of the state.

Meltzer argues that Keynes supported this proposition by tracing a chain of causation running from volatile expectations to uncertainty to money demand to interest rates, and thence to investment, the capital stock, and real output. Volatile expectations of future prices and market conditions increase uncertainty and raise default risks. With default risks up, investors shift from holding claims to real capital to holding cash. The resulting increased demand for real cash balances bids up interest rates sufficiently to incorporate a risk premium that compensates lenders for bearing default risks. Augmented by risk premia, higher interest rates inhibit investment, thus causing the capital stock to be too low to produce the full employment level of output.

What is needed is something to reduce the excess uncertainty that holds output and employment below their maximum equilibrium levels. To Keynes, as Meltzer sees him, that something was the state. As director of investment, the state could stabilize investment spending, thereby eradicating a key source of variability and uncertainty. Moreover, the state, by effectively combining the investment-financing functions of lending and borrowing, could avoid default risks that arise when those functions are performed by separate individuals. In these ways the state would act to eliminate avoidable uncertainty and default risks. The result would be to remove the wedge between private and social costs of capital so that the capital stock could attain its optimum (saturation) level at which its marginal efficiency is zero.

Meltzer generally sympathizes with Keynes's message except for the proposition that the state direct investment. In this connection, he points out that state direction of investment in many countries has been disastrous, with projects bearing effective yields of zero or less often favored over projects with high potential yields. To be sure, Keynes advocated carrying investment to the saturation point of zero returns. But he wanted

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the state to do it efficiently by systematically exhausting all higher-yielding projects before moving successively to lower-yielding ones. Believing as he did in a state run by an intellectual elite of dedicated, disinterested civil servants capable of making wise investment decisions, he did not foresee how partisan politics and bureaucratic rent seeking, favoritism, and corruption could produce the opposite result.

Meltzer's interpretation, despite its superficial plausibility, seems fundamentally wrong to me. For one thing, it attributes to Keynes the theory that equilibrium levels of output and employment are too low because the capital stock is too small, i.e., below its saturation level. In fact, however, Keynes himself believed that low levels of output and employment were caused by the capital stock being too large. Writing at a time when the economy was plagued by idle capacity, Keynes held that the capital stock exerted a negative influence on real activity via its depressing effect on rates of return and the inducement to invest. In ignoring this point and arguing that Keynes believed the existing capital stock was too small to absorb the labor force, Meltzer comes close to attributing to Keynes a Marxian theory of unemployment. Such a theory is more applicable to underdeveloped capital-poor economies than to the mature capitalistic economy described by Keynes. What Meltzer overlooks is that Keynes was less concerned with the long-run process of capital expansion than with the short-run determination of the equilibrium level of output by effective demand under the assumption of a fixed capital stock. Meltzer confounds Keynes's basic short-run analysis with longer-run growth considerations that were only of incidental interest to him.

Meltzer also probably overstates the role of uncertainty in Keynes's analysis. As Don Patinkin points out, Keynes never referred explicity to such uncertainty in the crucial summary chapters 3 and 18 of the *General Theory*. Thus, although he was not primarily interested in the long-run growth process, he would have denied that uncertainty per se was the predominant factor inhibiting that process. Rather he would have seen deficient effective demand and its painful impact on real activity as the dominant influence. That is, he would have contended that the occasional appearance of mass unemployment interferes with the growth process, thereby retarding long-term capital formation.

One can also question whether state direction of investment was of major concern to Keynes. Patinkin, for one, argues that it was not. Another thing that seems wrong is the Meltzer-Keynes notion that default risks are somehow eliminated by combining the functions of borrowing and lending in the hands of the state. Investments can go bad for the state as well as for private individuals. And when they do, someone—taxpayer or private lender—has to suffer the loss. Combining the finance functions in the hands of the state does not reduce default risks. It merely shifts them from lenders to taxpayers.

Meltzer is hardly on safer grounds when he distinguishes his version of Keynes from the stereotypical caricature of the textbooks. For in some

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respects, at least, the simplified textbook model fairly accurately captures many of the essentials of Keynes's own views. Indeed Keynes virtually admitted as much in a 1937 letter to J. R. Hicks, agreeing with the latter's IS-LM interpretation of the *General Theory*—the same interpretation enshrined in textbooks today. Be that as it may, Meltzer argues that Keynes, contrary to the impression conveyed by his celebrated remark that in the long run we are all dead, invariably took the long view over the short. Consequently, he emerges from the pages of Meltzer's book more a monetarist than a Keynesian.

Meltzer has it that the Keynes of the textbooks sought first and foremost to eliminate cyclical depressions. Accordingly the textbook Keynes adhered to such notions as activist countercyclical policy and discretionary fine-tuning. He also believed in the existence of inflation-unemployment tradeoffs, cost-push inflation, and downwardly rigid money wages. By contrast, in Meltzer's interpretation Keynes was less concerned with smoothing the business cycle than with raising permanently the long-run equilibrium level of output. To that end he opposed countercyclical policies to change interest rates in favor of policies designed to maintain low interest rates so as to promote capital saturation. Meltzer's Keynes wished above all to eliminate excess uncertainty and variability including that arising from policy shocks and surprises. Therefore, he sought to limit activist fine-tuning and discretionary intervention with well-defined policy rules. No believer in money illusion or the power of nominal economic variables permanently to influence real ones, he denied the existence of long-run inflation-unemployment tradeoffs and asserted the validity of the classical neutrality proposition. Likewise he denied that inflation stems from the exercise of monopoly market power by trade unions and business firms. Instead, he assumed that labor and product markets are perfectly competitive and that inflation is a monetary phenomenon. As for his alleged belief in the absolute downward rigidity of money wages, Meltzer's Keynes argued that money wages, in fact, possess some downward flexibility but that their reduction cannot be depended on to raise the level of employment.

One can be skeptical of Meltzer's characterization of Keynes. But one cannot deny that his book is a cornucopia of fascinating information about Keynes. Among the nuggets: The same Keynes whose name is attached to large-scale, multi-equation Keynesian macroeconometric models thought such models useless because their coefficient estimates were unreliable. The reader will also learn that the Keynes excoriated by modern rational expectationists for claiming that investment decisions were based on animal spirits adhered to something akin to the notion of rational expectations in short-run contexts if not in long-run ones. He will learn that the Keynes once depicted by right-wing extremists as being in league with Marxists scathingly dismissed Marxian socialism as an "illogical and dull" doctrine and strongly believed in private property and individual freedom. Finally, he will learn that the Keynes

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accused of being an inflationist was so concerned with avoiding inflation that he urged a policy of price stability in his *Tract on Monetary Reform* (1923) and his *Treatise on Money* (1930) and even expressed concern with the possible inflationary consequences of Britain's rearmament program in early 1937 when unemployment was around 12 percent.

What the reader will not learn is why Keynes omitted open-economy considerations from his *General Theory*. Nor will he learn why Keynes, despite the sophisticated analysis presented in his *Tract on Monetary Reform* of inflation as a tax on real cash balances, failed in the *General Theory* to mention such inflation as a means of inducing wealth-holders to hold less cash and more real capital so that the capital stock could approach its optimum level. True, Meltzer advances some tentative answers to these questions. But he admits that they are mere conjectures unsupported by Keynes's own words. In the end they remain a mystery.

To summarize, Meltzer has written an important book that should revive interest in a great economist whose reputation has been in decline since the failure of Keynesian policies in the late 1960s and 1970s and the consequent rise of the anti-Keynesian monetarist and rational expectations (or new classical) schools. That Meltzer finds much of value in Keynes's writings while simultaneously being a leading monetarist critic of Keynesianism only adds to the book's appeal. Another plus is that Meltzer has found something new to say about Keynes. Still, it remains to be seen whether Meltzer's unconventional interpretation of Keynes's central message will withstand critical scrutiny. Certainly, it will generate discussion among scholars and policymakers for years to come.

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Unfair Competition: The Profits of Nonprofits
James T. Bennett and Thomas J. DiLorenzo
Lanham, Md.: Hamilton Press, 1989. 214 pp.

Ideally government provides for the national defense and a few other public goods, establishes a legal setting conducive to specialization and exchange, and leaves the production of the vast majority of goods and services to the private sector. Things are far from ideal, however. Government routinely helps finance the production of a large number of goods and services that could be supplied privately and, in fact, would be more efficiently produced by the private sector. In doing so, government hampers the private sector's ability to create wealth by subjecting it to unfair (subsidized) competition and, to rub salt into the wound, these subsidies are paid for through higher tax burdens imposed on the private sector.

Bennett and DiLorenzo have written what can best be described as an analytical exposé on an important, but largely overlooked, aspect of government's pernicious usurpation of private sector activities. They

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have focused attention on the commercial operations of so-called nonprofit enterprises by amassing a wealth of data on the scope and performance of these enterprises. The authors then interpret these data within the analytical framework provided by the economics of public choice and property rights.

As Bennett and DiLorenzo point out early on, "nonprofit" enterprises are not nonprofit enterprises. In their words, "A nonprofit can be (and often is) a profitable enterprise in that its revenue or income exceeds its expenses, . . . [but] a nonprofit is prohibited from directly distributing profits to anyone associated with the organization" (p. 12). In return for accepting this restriction on the dispersion of profits, and for a supposed commitment to devote these profits to furthering charitable (or otherwise public service oriented) work, nonprofit enterprises pay no taxes, receive subsidized mail service, have access to low interest loans, sometimes exercise the power of eminent domain, and commonly receive direct government subsidies.

The rationale for the preferential treatment given nonprofits is that they are better able to provide important public services than are private for-profit enterprises. Supposedly, the elimination of the profit motive and the provision of subsidies allow nonprofits to perform essential services that, because of thin markets, poor consumer information, or public goods problems, would otherwise not be provided or would be provided poorly.

Bennett and DiLorenzo demolish, both with theory and example, these standard arguments for the special privileges of nonprofits. None of the above justifications is consistent with nonprofits engaging in commercial activity that is also being performed on a large scale by the for-profit private sector. The primary target of Bennett's and DiLorenzo's discussion, however, is the nonprofits' use of their subsidies to engage in exactly this commercial activity and, in doing so, to compete unfairly against private firms. There is a growing trend, as documented by Bennett and DiLorenzo, for nonprofits to expand beyond the functions upon which their nonprofit privileges are based and into normal commercial activity. The very presence of for-profit firms in these endeavors indicates that such activities obviously are not hampered in any significant way by thin markets, public good problems, or inadequate consumer information.

No one can deny, of course, that real-world markets are imperfect (at least when judged against the standard of textbook perfection), or that there are public policy schemes that, if conceived of by Solomon and implemented by saints, would improve the performance of markets. But Bennett and DiLorenzo point out that there is no reason to believe that a policy of subsidizing nonprofit enterprises will improve either the efficiency or equity of the market place. Indeed, the opposite is more likely to be the case.

As Bennett and DiLorenzo emphasize, the nonprofits are prevented, not from making profits, but from paying those profits directly to residual

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claimants. Managers, as well as other employees, of nonprofits can benefit from the excess revenues generated by increasing the cost of operating with higher-than-competitive salaries, more pleasant and posh working environment, larger staffs, extra travel, and other work related perquisites. Clearly the incentives that exist within nonprofit enterprises to operate efficiently are far weaker than those operating within for-profit firms. Given the differences in incentive structures, the nonprofits would find it impossible to move into normal commercial activities and compete effectively against for-profit businesses without their governmentally bestowed advantages. Because of these advantages, the nonprofits are not only engaging in unfair competition, but reducing efficiency by doing so.

Nonprofits might be able to redeem themselves for their inefficiency in commercial activities if they used the proceeds to provide valued public services on a more equitable basis than do for-profit enterprises. But the inefficiencies of nonprofits do not inspire confidence that equity will be served. And as the managers of nonprofit organizations frequently find, the financial gains from providing services to those who can afford them usually are greater than the gains from serving the truly needy. Bennett and DiLorenzo back this insight with a detailed look at two nonprofit organizations (YMCA and hospitals) that justify their nonprofit privileges by claiming to provide needed services to the poor, services that are not provided adequately by the for-profit sector.

In a chapter on "Unfair Competition in the Physical Fitness Industry," Bennett and DiLorenzo document the YMCA's transformation from an organization dedicated to "improving 'the spiritual, mental, and physical health of the young,' especially the less privileged" to one providing upscale health clubs for the affluent in direct (and subsidized) competition with for-profit firms. Many of these YMCA branches now have, in effect, a "no kids" policy making it difficult for even the children of its affluent members to use the Y's facilities, much less the disadvantaged children in whose name the Y continues to justify its tax breaks and direct subsidies.

In another excellent chapter on "Unfair Competition in the Hospital and Medical Care Industries," the assertion is considered that nonprofit hospitals are more committed to treating the poor than are for-profit hospitals. Bennett and DiLorenzo discuss a major study of nonprofit and for-profit hospitals by Herzlinger and Krasker that concludes that for-profit hospitals "are more efficient than nonprofits, reinvest their earnings in newer plant and equipment, and offer just as broad a range of services to a large number of patients, including the medically indigent." Based on the evidence and for reasons nicely explained by Bennett and DiLorenzo, the only ones who appear to clearly benefit from the granting of nonprofit privileges to hospitals are physicians.

In making their case against nonprofits as strong as possible, Bennett and DiLorenzo are on occasion somewhat overly critical. There is reason

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to doubt their argument, for example, that nonprofit enterprises are less efficient than government enterprises because the voter has more control over the latter. Such voter control is notoriously weak, and in my opinion it is likely to be less effective at controlling political managers of government enterprises than the imperfect, but nonetheless real, residual claimant incentives of nonprofit managers. After all, revenues raised through government enterprises commonly go into the general fund, while nonprofit managers retain control over the revenues they generate. Also, nonprofits compete on occasion against government enterprises and, in doing so, provide the public a useful alternative. Nonprofit Catholic schools are undeniably more efficient than are public schools, and serve to moderate, at least to some extent, the stranglehold the public school system has on educational choice. In the perfect world described at the beginning of this review, nonprofit enterprises would be unequivocally harmful. In the world of governmentally generated distortions in which we live, it is possible to say some, if only a few, positive things about nonprofits.

But the fact that it is possible to discover a few good things Bennett and DiLorenzo leave unsaid about nonprofits is, at worst, only a minor criticism of an excellent book. The objectives of the authors are to make a strong case against the nonprofit sector of the economy and to prompt a re-examination of public policy toward nonprofits. They impressively accomplish the first objective, and if they are successful with the latter, the best we can hope for is that the re-examination will be guided by the arguments and evidence presented in *Unfair Competition: The Profits of Nonprofits.*

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NEW FROM **LIBERTY FUND**

THE ETHICS OF REDISTRIBUTION

by Bertrand de Jouvenel
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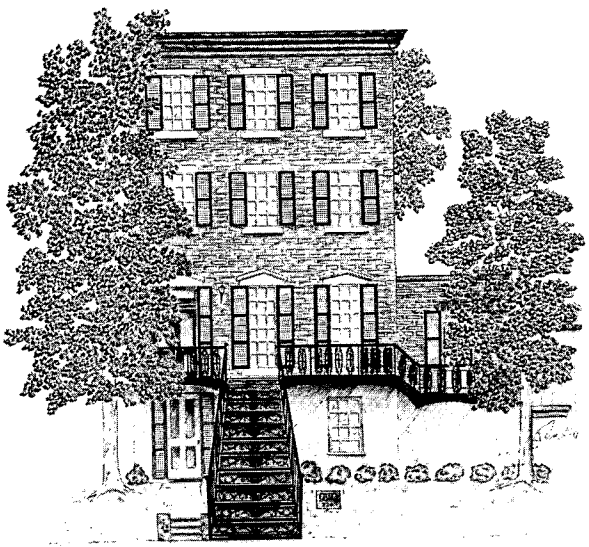

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If we want free enterprise and a market economy to survive (as even the supporters of a so-called 'mixed economy' presumably also wish), we have no choice but to replace the governmental currency monopoly and national currency systems by free competition between private banks of issue. We have never had the control of money in the hands of agencies whose *sole* and *exclusive* concern was to give the public what currency it liked best among several kinds offered, and which at the same time staked their existence on fulfilling the expectations they had created. . . .

What we now need is a Free Money Movement comparable to the Free Trade Movement of the 19th century, demonstrating not merely the harm caused by acute inflation, which could justifiably be argued to be avoidable even with present institutions, but the deeper effects of producing periods of stagnation that are indeed inherent in the present monetary arrangements.

—F. A. Hayek

Denationalisation of Money: The Argument Refined, 2d ed. (London: Institute of Economic Affairs, 1978), pp. 126, 129.

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